



## SEQUENCE LISTING

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<120> COMPLEXES OF ALPHA (2) MACROGLOBULIN AND ANTIGENIC MOLECULES FOR IMMUNOTHERAPY

<130> 8449-178-999

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<212> DNA

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Gln Val Ser Thr Ile Thr Pro Thr Ser Thr Arg Gln Thr Thr Ala Met	
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Gly Phe Val Asp Glu His Thr Ile Asn Ile Ser Leu Ser Leu His His	
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Ile Glu His Leu Tyr Gly Leu Thr Val Phe Glu Asn Tyr Leu Tyr Ala	
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Lys Gly Gly Ala Leu His Ile Tyr His Gln Arg Arg Gln Pro Arg Val	
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Trp Thr Asp Asp Gly Pro Lys Lys Thr Ile Ser Val Ala Arg Leu Glu			
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Lys Ala Ala Gln Thr Arg Lys Thr Leu Ile Glu Gly Lys Met Thr His			
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ccc agg gcc att gta gtg gat cca ctc aat ggg tgg atg tac tgg aca		2439	
Pro Arg Ala Ile Val Val Asp Pro Leu Asn Gly Trp Met Tyr Trp Thr			
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Thr Val Thr Leu Leu Arg Ser Glu Arg Pro Pro Ile Phe Glu Ile Arg			

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Asn Asn Gly Gly Cys Ser Ser Leu Cys Leu Ala Thr Pro Gly Ser Arg			
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Cys Leu Ala Asn Pro Ser Tyr Val Pro Pro Pro Gln Cys Gln Pro Gly			
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Gln Phe Ala Cys Ala Asn Arg Cys Ile Gln Glu Arg Trp Lys Cys			
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Asp Gly Asp Asn Asp Cys Leu Asp Asn Ser Asp Glu Ala Pro Ala Leu			
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Cys His Gln His Thr Cys Pro Ser Asp Arg Phe Lys Cys Glu Asn Asn			
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Arg Cys Ile Pro Asn Arg Trp Leu Cys Asp Gly Asp Asn Asp Cys Gly			
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Asn Ser Glu Asp Glu Ser Asn Ala Thr Cys Ser Ala Arg Thr Cys Pro			
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Pro Asn Gln Phe Ser Cys Ala Ser Gly Arg Cys Ile Pro Ile Ser Trp			
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Ser Cys Ala Tyr Pro Thr Cys Phe Pro Leu Thr Gln Phe Thr Cys Asn			
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Asn Gly Arg Cys Ile Asn Ile Asn Trp Arg Cys Asp Asn Asp Asn Asp			
990	995		1000
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Cys Gly Asp Asn Ser Asp Glu Ala Gly Cys Ser His Ser Cys Ser			
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agt acc cag ttc aag tgc aac agt ggc aga tgc atc ccc gag cac			3537
Ser Thr Gln Phe Lys Cys Asn Ser Gly Arg Cys Ile Pro Glu His			
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Cys His Ser	Asp Glu Phe Gln Cys	Pro Leu Asp Gly Leu	Cys Ile	
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Pro Leu Arg	Trp Arg Cys Asp Gly	Asp Thr Asp Cys Met	Asp Ser	
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Ala Trp Val	Cys Asp Gly Asp Ser	Asp Cys Glu Asp Asn	Ser Asp	
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Glu Glu Asn	Cys Glu Ala Leu Ala	Cys Arg Pro Pro Ser	His Pro	
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Cys Ala Asn	Asn Thr Ser Val Cys	Leu Pro Pro Asp Lys	Leu Cys	
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Cys Asp Gln	Cys Ser Leu Asn Asn	Gly Gly Cys Ser His	Asn Cys	
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Phe Ser Val	Lys Cys Ser Cys Tyr	Glu Gly Trp Val Leu	Glu Pro	
1245	1250	1255		

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1290							1295					1300			
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Leu	Asp	Phe	His	Leu	Ser	Gln	Ser	Ala	Leu	Tyr	Trp	Thr	Asp	Ala	
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Glu	Ser	Asn	Leu	Asp	Gln	Ile	Glu	Val	Ala	Lys	Leu	Asp	Gly	Thr	
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gtg	tat	cac	cct	tcc	cg	cag	ccc	atg	gct	cca	aac	cca	tgt	gag	5067
Val	Tyr	His	Pro	Ser	Arg	Gln	Pro	Met	Ala	Pro	Asn	Pro	Cys	Glu	
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gcc	aat	ggc	ggc	cgg	ggc	ccc	tgt	tcc	cat	ctg	tgc	ctc	atc	aac	5112
Ala	Asn	Gly	Gly	Arg	Gly	Pro	Cys	Ser	His	Leu	Cys	Leu	Ile	Asn	
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tac	aac	cg	acc	gtc	tcc	tgg	gcc	tgt	ccc	cac	ctc	atg	aag	ctg	5157
Tyr	Asn	Arg	Thr	Val	Ser	Trp	Ala	Cys	Pro	His	Leu	Met	Lys	Leu	
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His	Lys	Asp	Asn	Thr	Thr	Cys	Tyr	Glu	Phe	Lys	Lys	Phe	Leu	Leu	
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tac	gca	cgt	cag	atg	gag	atc	cg	ggc	gtg	gac	ctg	gat	gcc	ccg	5247
Tyr	Ala	Arg	Gln	Met	Glu	Ile	Arg	Gly	Val	Asp	Leu	Asp	Ala	Pro	
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Tyr	Tyr	Asn	Tyr	Ile	Ile	Ser	Phe	Thr	Val	Pro	Asp	Ile	Asp	Asn	
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Val	Thr	Val	Leu	Asp	Tyr	Asp	Ala	Arg	Glu	Gln	Arg	Val	Tyr	Trp	
								1620				1630			
tct	gat	gtg	cg	act	caa	gcc	atc	aaa	agg	gca	ttt	atc	aac	ggc	5382
Ser	Asp	Val	Arg	Thr	Gln	Ala	Ile	Lys	Arg	Ala	Phe	Ile	Asn	Gly	
								1635				1645			
act	ggc	gtg	gag	acc	gtt	gtc	tct	gca	gac	ttt	ccc	aac	gcc	cac	5427
Thr	Gly	Val	Glu	Thr	Val	Val	Ser	Ala	Asp	Leu	Pro	Asn	Ala	His	
								1650				1660			
ggg	ctg	gct	gtg	gac	tgg	gtc	tcc	cga	aat	ctg	ttt	tgg	aca	agt	5472
Gly	Leu	Ala	Val	Asp	Trp	Val	Ser	Arg	Asn	Leu	Phe	Trp	Thr	Ser	
								1665				1675			
tac	gac	acc	aac	aag	aag	cag	att	aac	gtg	gcc	cg	ctg	gac	ggc	5517
Tyr	Asp	Thr	Asn	Lys	Lys	Gln	Ile	Asn	Val	Ala	Arg	Leu	Asp	Gly	
								1680				1690			
tcc	tcc	aag	aat	gcg	gtg	gtg	cag	ggc	ctg	gag	cag	ccc	cac	ggc	5562
Ser	Phe	Lys	Asn	Ala	Val	Val	Gln	Gly	Leu	Glu	Gln	Pro	His	Gly	
								1695				1705			
ctg	gtc	gtc	cac	ccg	ctt	cgt	ggc	aag	ctc	tac	tgg	act	gat	ggg	5607
Leu	Val	Val	His	Pro	Leu	Arg	Gly	Lys	Leu	Tyr	Trp	Thr	Asp	Gly	

1710	1715	1720	
gac aac atc agc atg gcc aac atg	gat ggg agc aac cac	act ctg	5652
Asp Asn Ile Ser Met Ala Asn Met	Asp Gly Ser Asn His	Thr Leu	
1725	1730	1735	
ctc ttc agt ggc cag aag ggc cct	gtg ggg ttg gcc att	gac ttc	5697
Leu Phe Ser Gly Gln Lys Gly Pro	Val Gly Leu Ala Ile	Asp Phe	
1740	1745	1750	
cct gag agc aaa ctc tac tgg atc	agc tct ggg aac cac	aca atc	5742
Pro Glu Ser Lys Leu Tyr Trp Ile	Ser Ser Gly Asn His	Thr Ile	
1755	1760	1765	
aac cgt tgc aat ctg gat ggg agc	gag ctg gag gtc atc	gac acc	5787
Asn Arg Cys Asn Leu Asp Gly Ser	Glu Leu Glu Val Ile	Asp Thr	
1770	1775	1780	
atg cgg agc cag ctg ggc aag gcc	act gcc ctg gcc atc	atg ggg	5832
Met Arg Ser Gln Leu Gly Lys Ala	Thr Ala Leu Ala Ile	Met Gly	
1785	1790	1795	
gac aag ctg tgg tgg gca gat cag	gtg tca gag aag atg	ggc acg	5877
Asp Lys Leu Trp Trp Ala Asp Gln	Val Ser Glu Lys Met	Gly Thr	
1800	1805	1810	
tgc aac aaa gcc gat ggc tct ggg	tcc gtg gtg ctg cgg	aac agt	5922
Cys Asn Lys Ala Asp Gly Ser Gly	Ser Val Val Leu Arg	Asn Ser	
1815	1820	1825	
acc acg ttg gtt atg cac atg aag	gtg tat gac gag agc	atc cag	5967
Thr Thr Leu Val Met His Met Lys	Val Tyr Asp Glu Ser	Ile Gln	
1830	1835	1840	
cta gag cat gag ggc acc aac ccc	tgc agt gtc aac aac	gga gac	6012
Leu Glu His Glu Gly Thr Asn Pro	Cys Ser Val Asn Asn	Gly Asp	
1845	1850	1855	
tgt tcc cag ctc tgc ctg cca aca	tca gag acg act cgc	tcc tgt	6057
Cys Ser Gln Leu Cys Leu Pro Thr	Ser Glu Thr Thr Arg	Ser Cys	
1860	1865	1870	
atg tgt aca gcc ggt tac agc ctc	cgg agc gga cag cag	gcc tgt	6102
Met Cys Thr Ala Gly Tyr Ser Leu	Arg Ser Gly Gln Gln	Ala Cys	
1875	1880	1885	
gag ggt gtg ggc tct ttt ctc ctg	tac tct gta cat gag	gga att	6147
Glu Gly Val Gly Ser Phe Leu Leu	Tyr Ser Val His Glu	Gly Ile	
1890	1895	1900	
cgg ggg att cca cta gat ccc aat	gac aag tcg gat gcc	ctg gtc	6192
Arg Gly Ile Pro Leu Asp Pro Asn	Asp Lys Ser Asp Ala	Leu Val	
1905	1910	1915	
cca gtg tcc gga act tca ctg gct	gtc gga atc gac ttc	cat gcc	6237
Pro Val Ser Gly Thr Ser Leu Ala	Val Gly Ile Asp Phe	His Ala	
1920	1925	1930	
gaa aat gac act att tat tgg gtg	gat atg ggc cta agc	acc atc	6282
Glu Asn Asp Thr Ile Tyr Trp Val	Asp Met Gly Leu Ser	Thr Ile	
1935	1940	1945	

agc agg gcc	aag cgt gac cag aca	tgg cga gag gat gtg	gtg acc	6327
Ser Arg Ala	Lys Arg Asp Gln Thr	Trp Arg Glu Asp Val	Val Thr	
1950	1955	1960		
aac ggt att	ggc cgt gtg gag ggc	atc gcc gtg gac tgg	atc gca	6372
Asn Gly Ile	Gly Arg Val Glu Gly	Ile Ala Val Asp Trp	Ile Ala	
1965	1970	1975		
ggc aac ata	tac tgg acg gac cag	ggc ttc gat gtc atc	gag gtt	6417
Gly Asn Ile	Tyr Trp Thr Asp Gln	Gly Phe Asp Val Ile	Glu Val	
1980	1985	1990		
gcc cgg ctc	aat ggc tct ttt cgt	tat gtg gtc att tcc	cag ggt	6462
Ala Arg Leu	Asn Gly Ser Phe Arg	Tyr Val Val Ile Ser	Gln Gly	
1995	2000	2005		
ctg gac aag	cct cgg gcc atc act	gtc cac cca gag aag	ggg tac	6507
Leu Asp Lys	Pro Arg Ala Ile Thr	Val His Pro Glu Lys	Gly Tyr	
2010	2015	2020		
ttg ttc tgg	acc gag tgg ggt cat	tac cca cgt att gag	cggt tct	6552
Leu Phe Trp	Thr Glu Trp Gly His	Tyr Pro Arg Ile Glu	Arg Ser	
2025	2030	2035		
cgc ctt gat	ggc aca gag aga gtg	gtg ttg gtt aat gtc	agc atc	6597
Arg Leu Asp	Gly Thr Glu Arg Val	Val Leu Val Asn Val	Ser Ile	
2040	2045	2050		
agc tgg ccc	aat ggc atc tca gta	gac tat cag ggc ggc	aag ctc	6642
Ser Trp Pro	Asn Gly Ile Ser Val	Asp Tyr Gln Gly Gly	Lys Leu	
2055	2060	2065		
tac tgg tgt	gat gct cgg atg gac	aag atc gag cgc atc	gac ctg	6687
Tyr Trp Cys	Asp Ala Arg Met Asp	Lys Ile Glu Arg Ile	Asp Leu	
2070	2075	2080		
gaa acg ggc	gag aac cgg gag gtg	gtc ctg tcc agc aat	aac atg	6732
Glu Thr Gly	Glu Asn Arg Glu Val	Val Leu Ser Ser Asn	Asn Met	
2085	2090	2095		
gat atg ttc	tcc gtg tcc gtg ttt	gag gac ttc atc tac	tgg agt	6777
Asp Met Phe	Ser Val Ser Val Phe	Glu Asp Phe Ile Tyr	Trp Ser	
2100	2105	2110		
gac aga act	cac gcc aat ggc tcc	atc aag cgc ggc tgc	aaa gac	6822
Asp Arg Thr	His Ala Asn Gly Ser	Ile Lys Arg Gly Cys	Lys Asp	
2115	2120	2125		
aat gct aca	gac tcc gtg cct ctg	agg aca ggc att ggt	gtt cag	6867
Asn Ala Thr	Asp Ser Val Pro Leu	Arg Thr Gly Ile Gly	Val Gln	
2130	2135	2140		
ctt aaa gac	atc aag gtc ttc aac	agg gac agg cag aag	ggt acc	6912
Leu Lys Asp	Ile Lys Val Phe Asn	Arg Asp Arg Gln Lys	Gly Thr	
2145	2150	2155		
aat gtg tgc	gcg gta gcc aac ggc	ggg tgc cag cag ctc	tgc ttg	6957
Asn Val Cys	Ala Val Ala Asn Gly	Gly Cys Gln Gln Leu	Cys Leu	
2160	2165	2170		

tat	cgg	ggt	ggc	gga	cag	cga	gcc	tgt	gcc	tgt	gcc	cac	ggg	atg	7002
Tyr	Arg	Gly	Gly	Gly	Gln	Arg	Ala	Cys	Ala	Cys	Ala	His	Gly	Met	
2175							2180					2185			
ctg	gca	gaa	gac	ggg	gcc	tca	tgc	cga	gag	tac	gct	ggc	tac	ctg	7047
Leu	Ala	Glu	Asp	Gly	Ala	Ser	Cys	Arg	Glu	Tyr	Ala	Gly	Tyr	Leu	
2190							2195					2200			
ctc	tac	tca	gag	cgg	acc	atc	ctc	aag	agc	atc	cac	ctg	tcg	gat	7092
Leu	Tyr	Ser	Glu	Arg	Thr	Ile	Leu	Lys	Ser	Ile	His	Leu	Ser	Asp	
2205							2210					2215			
gag	cgt	aac	ctc	aac	gca	ccg	gtg	cag	ccc	ttt	gaa	gac	ccc	gag	7137
Glu	Arg	Asn	Leu	Asn	Ala	Pro	Val	Gln	Pro	Phe	Glu	Asp	Pro	Glu	
2220							2225					2230			
cac	atg	aaa	aat	gtc	atc	gcc	ctg	gcc	ttt	gac	tac	cga	gca	ggc	7182
His	Met	Lys	Asn	Val	Ile	Ala	Leu	Ala	Phe	Asp	Tyr	Arg	Ala	Gly	
2235							2240					2245			
acc	tcc	ccg	ggg	acc	cct	aac	cgc	atc	ttc	ttc	agt	gac	atc	cac	7227
Thr	Ser	Pro	Gly	Thr	Pro	Asn	Arg	Ile	Phe	Phe	Ser	Asp	Ile	His	
2250							2255					2260			
ttt	ggg	aac	atc	cag	cag	atc	aat	gac	gat	ggc	tcg	ggc	agg	acc	7272
Phe	Gly	Asn	Ile	Gln	Gln	Ile	Asn	Asp	Asp	Gly	Ser	Gly	Arg	Thr	
2265							2270					2275			
acc	atc	gtg	gaa	aat	gtg	ggc	tct	gtg	gaa	ggc	ctg	gcc	tat	cac	7317
Thr	Ile	Val	Glu	Asn	Val	Gly	Ser	Val	Glut	Gly	Leu	Ala	Tyr	His	
2280							2285					2290			
cgt	ggc	tgg	gac	aca	ctg	tac	tgg	aca	agc	tac	acc	aca	tcc	acc	7362
Arg	Gly	Trp	Asp	Thr	Leu	Tyr	Trp	Thr	Ser	Tyr	Thr	Thr	Ser	Thr	
2295							2300					2305			
atc	acc	cgc	cac	acc	gtg	gac	cag	act	cgc	cca	ggg	gcc	ttc	gag	7407
Ile	Thr	Arg	His	Thr	Val	Asp	Gln	Thr	Arg	Pro	Gly	Ala	Phe	Glu	
2310							2315					2320			
agg	gag	aca	gtc	atc	acc	atg	tcc	gga	gac	gac	cac	ccg	aga	gcc	7452
Arg	Glu	Thr	Val	Ile	Thr	Met	Ser	Gly	Asp	Asp	His	Pro	Arg	Ala	
2325							2330					2335			
ttt	gtg	ctg	gat	gag	tgc	cag	aac	ctg	atg	ttc	tgg	acc	aat	tgg	7497
Phe	Val	Leu	Asp	Glu	Cys	Gln	Asn	Leu	Met	Phe	Trp	Thr	Asn	Trp	
2340							2345					2350			
aac	gag	ctc	cat	cca	agc	atc	atg	cg	gca	gcc	cta	tcc	gga	gcc	7542
Asn	Glu	Leu	His	Pro	Ser	Ile	Met	Arg	Ala	Ala	Leu	Ser	Gly	Ala	
2355							2360					2365			
aac	gtc	ctg	acc	ctc	att	gag	aag	gac	atc	cgc	acg	ccc	aat	ggg	7587
Asn	Val	Leu	Thr	Leu	Ile	Glu	Lys	Asp	Ile	Arg	Thr	Pro	Asn	Gly	
2370							2375					2380			
ttg	gcc	atc	gac	cac	cgg	gcg	gag	aag	ctg	tac	ttc	tcg	gat	gcc	7632
Leu	Ala	Ile	Asp	His	Arg	Ala	Glu	Lys	Leu	Tyr	Phe	Ser	Asp	Ala	
2385							2390					2395			
acc	ttg	gac	aag	atc	gag	cgc	tgc	gag	tac	gac	ggc	tcc	cac	cgc	7677

Thr	Leu	Asp	Lys	Ile	Glu	Arg	Cys	Glu	Tyr	Asp	Gly	Ser	His	Arg	
2400					2405							2410			
tat	gtg	atc	cta	aag	tcg	gag	ccc	gtc	cac	ccc	ttt	ggg	ttg	gcg	7722
Tyr	Val	Ile	Leu	Lys	Ser	Glu	Pro	Val	His	Pro	Phe	Gly	Leu	Ala	
2415					2420							2425			
gtg	tac	gga	gag	cac	att	ttc	tgg	act	gac	tgg	gtg	cgg	cgg	gct	7767
Val	Tyr	Gly	Glu	His	Ile	Phe	Trp	Thr	Asp	Trp	Val	Arg	Arg	Ala	
2430					2435							2440			
gtg	cag	cga	gcc	aac	aag	tat	gtg	ggc	agc	gac	atg	aag	ctg	ctt	7812
Val	Gln	Arg	Ala	Asn	Lys	Tyr	Val	Gly	Ser	Asp	Met	Lys	Leu	Leu	
2445					2450							2455			
cgg	gtg	gac	att	ccc	cag	caa	ccc	atg	ggc	atc	atc	gcc	gtg	gcc	7857
Arg	Val	Asp	Ile	Pro	Gln	Gln	Pro	Met	Gly	Ile	Ile	Ala	Val	Ala	
2460				2465								2470			
aat	gac	acc	aac	agc	tgt	gaa	ctc	tcc	ccc	tgc	cgt	atc	aac	aat	7902
Asn	Asp	Thr	Asn	Ser	Cys	Glu	Leu	Ser	Pro	Cys	Arg	Ile	Asn	Asn	
2475				2480								2485			
gga	ggc	tgc	cag	gat	ctg	tgt	ctg	ctc	acc	cac	caa	ggc	cac	gtc	7947
Gly	Gly	Cys	Gln	Asp	Leu	Cys	Leu	Leu	Thr	His	Gln	Gly	His	Val	
2490				2495								2500			
aac	tgt	tcc	tgt	cga	ggg	ggc	cgg	atc	ctc	cag	gag	gac	ttc	acc	7992
Asn	Cys	Ser	Cys	Arg	Gly	Gly	Arg	Ile	Leu	Gln	Glu	Asp	Phe	Thr	
2505				2510								2515			
tgc	cgg	gct	gtg	aac	tcc	tct	tgt	cgg	gca	caa	gat	gag	ttt	gag	8037
Cys	Arg	Ala	Val	Asn	Ser	Ser	Cys	Arg	Ala	Gln	Asp	Glu	Phe	Glu	
2520				2525								2530			
tgt	gcc	aat	ggg	gaa	tgt	atc	agc	ttc	agc	ctc	acc	tgt	gat	ggc	8082
Cys	Ala	Asn	Gly	Glu	Cys	Ile	Ser	Phe	Ser	Leu	Thr	Cys	Asp	Gly	
2535				2540								2545			
gtc	tcc	cac	tgc	aag	gac	aag	tcc	gat	gag	aag	ccc	tcc	tac	tgc	8127
Val	Ser	His	Cys	Lys	Asp	Lys	Ser	Asp	Glu	Lys	Pro	Ser	Tyr	Cys	
2550				2555								2560			
aac	tca	cgc	cgc	tgc	aag	aag	act	ttc	cgc	cag	tgt	aac	aat	ggc	8172
Asn	Ser	Arg	Arg	Cys	Lys	Lys	Thr	Phe	Arg	Gln	Cys	Asn	Asn	Gly	
2565				2570								2575			
cgc	tgt	gta	tcc	aac	atg	ctg	tgg	tgc	aat	ggg	gtg	gat	tac	tgt	8217
Arg	Cys	Val	Ser	Asn	Met	Leu	Trp	Cys	Asn	Gly	Val	Asp	Tyr	Cys	
2580				2585								2590			
ggg	gat	ggc	tct	gat	gag	ata	cct	tgc	aac	aag	act	gcc	tgt	ggt	8262
Gly	Asp	Gly	Ser	Asp	Glu	Ile	Pro	Cys	Asn	Lys	Thr	Ala	Cys	Gly	
2595				2600								2605			
gtg	ggt	gag	ttc	cgc	tgc	cgg	gat	ggg	tcc	tgc	atc	ggg	aac	tcc	8307
Val	Gly	Glu	Phe	Arg	Cys	Arg	Asp	Gly	Ser	Cys	Ile	Gly	Asn	Ser	
2610				2615								2620			
agt	cgc	tgc	aac	cag	ttt	gtg	gat	tgt	gag	gat	gcc	tcg	gat	gag	8352
Ser	Arg	Cys	Asn	Gln	Phe	Val	Asp	Cys	Glu	Asp	Ala	Ser	Asp	Glu	

2625	2630	2635	
atg aat tgc agt gcc aca gac tgc Met Asn Cys Ser Ala Thr Asp Cys	agc agc tat ttc cgc ctg ggc Ser Ser Tyr Phe Arg Leu Gly		8397
2640	2645	2650	
gtg aaa ggt gtc ctc ttc cag ccg Val Lys Gly Val Leu Phe Gln Pro	tgc gag cgga aca tcc ctg tgc Cys Glu Arg Thr Ser Leu Cys		8442
2655	2660	2665	
tac gca cct agc tgg gtg tgt gat Tyr Ala Pro Ser Trp Val Cys Asp	ggc gcc aac gac tgt gga gac Gly Ala Asn Asp Cys Gly Asp		8487
2670	2675	2680	
tac agc gat gaa cgt gac tgt cca Tyr Ser Asp Glu Arg Asp Cys Pro	ggt gtg aag cgc cct agg tgc Gly Val Lys Arg Pro Arg Cys		8532
2685	2690	2695	
ccg ctc aat tac ttt gcc tgc ccc Pro Leu Asn Tyr Phe Ala Cys Pro	agc ggg cgc tgt atc ccc atg Ser Gly Arg Cys Ile Pro Met		8577
2700	2705	2710	
agc tgg acg tgt gac aag gag gat Ser Trp Thr Cys Asp Lys Glu Asp	gac tgt gag aac ggc gag gat Asp Cys Glu Asn Gly Glu Asp		8622
2715	2720	2725	
gag acc cac tgc aac aag ttc tgc Glu Thr His Cys Asn Lys Phe Cys	tca gag gca cag ttc gag tgc Ser Glu Ala Gln Phe Glu Cys		8667
2730	2735	2740	
cag aac cac cgg tgt atc tcc aag Gln Asn His Arg Cys Ile Ser Lys	cag tgg ctg tgt gac ggt agc Gln Trp Leu Cys Asp Gly Ser		8712
2745	2750	2755	
gat gat tgc ggg gat ggc tcc gat Asp Asp Cys Gly Asp Gly Ser Asp	gag gca gct cac tgt gaa ggc Glu Ala Ala His Cys Glu Gly		8757
2760	2765	2770	
aag aca tgt ggc ccc tcc tcc ttc Lys Thr Cys Gly Pro Ser Ser Phe	tcc tgt ccc ggc acc cac gtg Ser Cys Pro Gly Thr His Val		8802
2775	2780	2785	
tgt gtc cct gag cgc tgg ctc tgt Cys Val Pro Glu Arg Trp Leu Cys	gat ggc gac aag gac tgt acc Asp Gly Asp Gly Asp Lys Asp Cys Thr		8847
2790	2795	2800	
gat ggc gcg gat gag agt gtc act Asp Gly Ala Asp Glu Ser Val Thr	gct ggc tgc ctg tac aac agc Ala Gly Cys Leu Tyr Asn Ser		8892
2805	2810	2815	
acc tgt gat gac cgt gag ttc atg Thr Cys Asp Asp Arg Glu Phe Met	tgc cag aac cgc ttg tgt att Cys Gln Asn Arg Leu Cys Ile		8937
2820	2825	2830	
ccc aag cat ttc gtg tgc gac cat Pro Lys His Phe Val Cys Asp His	gac cgt gac tgt gct gat ggc Asp Arg Asp Cys Ala Asp Gly		8982
2835	2840	2845	
tct gat gaa tcc cct gag tgt gag Ser Asp Glu Ser Pro Glu Cys Glu	tac cca acc tgc ggg ccc aat Tyr Pro Thr Cys Gly Pro Asn		9027
2850	2855	2860	

gaa ttc cgc	tgt gcc aat ggg cgt	tgt ctg agc tcc cgt	cag tgg	9072
Glu Phe Arg	Cys Ala Asn Gly Arg	Cys Leu Ser Ser Arg	Gln Trp	
2865	2870	2875		
gaa tgt gat	ggg gag aat gac tgt	cac gac cac agc gat	gag gct	9117
Glu Cys Asp	Gly Glu Asn Asp Cys	His Asp His Ser Asp	Glu Ala	
2880	2885	2890		
ccc aag aac	cca cac tgc acc agc	cca gag cac aaa tgc	aat gcc	9162
Pro Lys Asn	Pro His Cys Thr Ser	Pro Glu His Lys Cys	Asn Ala	
2895	2900	2905		
tca tca cag	ttc ctg tgc agc agc	ggg cgc tgc gtg gct	gag gcg	9207
Ser Ser Gln	Phe Leu Cys Ser Ser	Gly Arg Cys Val Ala	Glu Ala	
2910	2915	2920		
ttg ctc tgc	aac ggc cag gac gac	tgt ggg gac ggt tca	gac gaa	9252
Leu Leu Cys	Asn Gly Gln Asp Asp	Cys Gly Asp Gly Ser	Asp Glu	
2925	2930	2935		
cgc ggg tgc	cat gtc aac gag tgt	ctc agc cgc aag ctc	agt ggc	9297
Arg Gly Cys	His Val Asn Glu Cys	Leu Ser Arg Lys Leu	Ser Gly	
2940	2945	2950		
tgc agt cag	gac tgc gag gac ctc	aag ata ggc ttt aag	tgc cgc	9342
Cys Ser Gln	Asp Cys Glu Asp Leu	Lys Ile Gly Phe Lys	Cys Arg	
2955	2960	2965		
tgt cgc ccg	ggc ttc cgg cta aag	gac gat ggc agg acc	tgt gcc	9387
Cys Arg Pro	Gly Phe Arg Leu Lys	Asp Asp Gly Arg Thr	Cys Ala	
2970	2975	2980		
gac ctg gat	gag tgc agc acc acc	ttc ccc tgc agc cag	ctc tgc	9432
Asp Leu Asp	Glu Cys Ser Thr Thr	Phe Pro Cys Ser Gln	Leu Cys	
2985	2990	2995		
atc aac acc	cac gga agt tac aag	tgt ctg tgt gtg gag	ggc tat	9477
Ile Asn Thr	His Gly Ser Tyr Lys	Cys Leu Cys Val Glu	Gly Tyr	
3000	3005	3010		
gca ccc cgt	ggc ggt gac ccc cac	agc tgc aaa gct gtg	acc gat	9522
Ala Pro Arg	Gly Gly Asp Pro His	Ser Cys Lys Ala Val	Thr Asp	
3015	3020	3025		
gag gag cca	ttt ctc atc ttt gcc	aac cgg tac tac ctg	cgg aag	9567
Glu Glu Pro	Phe Leu Ile Phe Ala	Asn Arg Tyr Tyr Leu	Arg Lys	
3030	3035	3040		
ctc aac ctg	gac ggc tcc aac tac	aca ctg ctt aag cag	ggc ctg	9612
Leu Asn Leu	Asp Gly Ser Asn Tyr	Thr Leu Leu Lys Gln	Gly Leu	
3045	3050	3055		
aac aat gcg	gtc gcc ttg gca ttt	gac tac cga gag cag	atg atc	9657
Asn Asn Ala	Val Ala Leu Ala Phe	Asp Tyr Arg Glu Gln	Met Ile	
3060	3065	3070		
tac tgg acg	ggc gtg acc acc cag	ggc agc atg att cgc	agg atg	9702
Tyr Trp Thr	Gly Val Thr Thr Gln	Gly Ser Met Ile Arg	Arg Met	
3075	3080	3085		

cac	ctc	aac	ggc	agc	aac	gtg	cag	gtt	ctg	cac	cg	acg	ggc	ctt	9747
His	Leu	Asn	Gly	Ser	Asn	Val	Gln	Val	Leu	His	Arg	Thr	Gly	Leu	
3090						3095							3100		
agt	aac	cca	gat	ggg	ctc	gct	gtg	gac	tgg	gtg	ggt	ggc	aac	ctg	9792
Ser	Asn	Pro	Asp	Gly	Leu	Ala	Val	Asp	Trp	Val	Gly	Gly	Asn	Leu	
3105						3110							3115		
tac	tgg	tgt	gac	aag	ggc	aga	gat	acc	att	gag	gtg	tcc	aag	ctt	9837
Tyr	Trp	Cys	Asp	Lys	Gly	Arg	Asp	Thr	Ile	Glu	Val	Ser	Lys	Leu	
3120						3125							3130		
aac	ggg	gcc	tat	cgg	aca	gtg	ctg	gtc	agc	tct	ggc	ctc	cg	gag	9882
Asn	Gly	Ala	Tyr	Arg	Thr	Val	Leu	Val	Ser	Ser	Gly	Leu	Arg	Glu	
3135						3140							3145		
ccc	aga	gct	ctg	gta	gtg	gat	gta	cag	aat	ggg	tac	ctg	tac	tgg	9927
Pro	Arg	Ala	Leu	Val	Val	Asp	Val	Gln	Asn	Gly	Tyr	Leu	Tyr	Trp	
3150						3155							3160		
aca	gac	tgg	ggt	gac	cac	tca	ctg	atc	ggc	cg	att	ggc	atg	gat	9972
Thr	Asp	Trp	Gly	Asp	His	Ser	Leu	Ile	Gly	Arg	Ile	Gly	Met	Asp	
3165						3170							3175		
gga	tct	ggc	cgc	agc	atc	atc	gtg	gac	act	aag	atc	aca	tgg	ccc	10017
Gly	Ser	Gly	Arg	Ser	Ile	Ile	Val	Asp	Thr	Lys	Ile	Thr	Trp	Pro	
3180						3185							3190		
aat	ggc	ctg	acc	gtg	gac	tac	gtc	acg	gaa	cg	atc	tac	tgg	gct	10062
Asn	Gly	Leu	Thr	Val	Asp	Tyr	Val	Thr	Glu	Arg	Ile	Tyr	Trp	Ala	
3195						3200							3205		
gac	gcc	cgt	gag	gac	tac	atc	gag	ttc	gcc	agc	ctg	gat	ggc	tcc	10107
Asp	Ala	Arg	Glu	Asp	Tyr	Ile	Glu	Phe	Ala	Ser	Leu	Asp	Gly	Ser	
3210						3215							3220		
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Asn	Arg	His	Val	Val	Leu	Ser	Gln	Asp	Ile	Pro	His	Ile	Phe	Ala	
3225						3230							3235		
ctg	acc	cta	ttt	gaa	gac	tac	gtc	tac	tgg	aca	gac	tgg	gaa	acg	10197
Leu	Thr	Leu	Phe	Glu	Asp	Tyr	Val	Tyr	Trp	Thr	Asp	Trp	Glu	Thr	
3240						3245							3250		
aag	tcc	atc	aac	cgg	gcc	cac	aag	acc	acg	ggt	ggc	aac	aaa	aca	10242
Lys	Ser	Ile	Asn	Arg	Ala	His	Lys	Thr	Thr	Gly	Ala	Asn	Lys	Thr	
3255						3260							3265		
ctc	ctc	atc	agc	acc	ctg	cac	cg	ccc	atg	gac	tta	cat	gta	tcc	10287
Leu	Leu	Ile	Ser	Thr	Leu	His	Arg	Pro	Met	Asp	Leu	His	Val	Phe	
3270						3275							3280		
cac	gcc	ctg	cgc	cag	cca	gat	gtg	ccc	aat	cac	ccc	tgc	aaa	gtc	10332
His	Ala	Leu	Arg	Gln	Pro	Asp	Val	Pro	Asn	His	Pro	Cys	Lys	Val	
3285						3290							3295		
aac	aat	ggt	ggc	tgc	agc	aac	ctg	tgc	ctg	ctg	tcc	cct	ggg	ggt	10377
Asn	Asn	Gly	Gly	Cys	Ser	Asn	Leu	Cys	Leu	Leu	Ser	Pro	Gly	Gly	
3300						3305							3310		
ggt	cac	aag	tgc	gcc	tgc	ccc	acc	aac	ttc	tat	ctg	ggt	ggc	gat	10422

Gly	His	Lys	Cys	Ala	Cys	Pro	Thr	Asn	Phe	Tyr	Leu	Gly	Gly	Asp	
3315							3320					3325			
ggc	cgt	acc	tgt	gtg	tcc	aac	tgc	aca	gca	agc	cag	ttt	gtg	tgc	10467
Gly	Arg	Thr	Cys	Val	Ser	Asn	Cys	Thr	Ala	Ser	Gln	Phe	Val	Cys	
3330							3335					3340			
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Lys	Asn	Asp	Lys	Cys	Ile	Pro	Phe	Trp	Trp	Lys	Cys	Asp	Thr	Glu	
3345							3350					3355			
gac	gac	tgt	ggg	gat	cac	tca	gac	gag	cct	cca	gac	tgt	ccc	gag	10557
Asp	Asp	Cys	Gly	Asp	His	Ser	Asp	Glu	Pro	Pro	Asp	Cys	Pro	Glu	
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Phe	Lys	Cys	Arg	Pro	Gly	Gln	Phe	Gln	Cys	Ser	Thr	Gly	Ile	Cys	
3375							3380					3385			
acc	aac	cct	gcc	ttc	atc	tgt	gat	ggg	gac	aat	gac	tgc	caa	gac	10647
Thr	Asn	Pro	Ala	Phe	Ile	Cys	Asp	Gly	Asp	Asn	Asp	Cys	Gln	Asp	
3390							3395					3400			
aat	agt	gac	gag	gcc	aat	tgc	gac	att	cac	gtc	tgc	ttg	ccc	agc	10692
Asn	Ser	Asp	Glu	Ala	Asn	Cys	Asp	Ile	His	Val	Cys	Leu	Pro	Ser	
3405							3410					3415			
caa	ttc	aag	tgc	acc	aac	acc	aac	cgc	tgc	att	cct	ggc	atc	ttc	10737
Gln	Phe	Lys	Cys	Thr	Asn	Thr	Asn	Arg	Cys	Ile	Pro	Gly	Ile	Phe	
3420							3425					3430			
cgt	tgc	aat	ggg	cag	gac	aac	tgc	ggg	gac	ggc	gag	gat	gag	cgg	10782
Arg	Cys	Asn	Gly	Gln	Asp	Asn	Cys	Gly	Asp	Gly	Glu	Asp	Glu	Arg	
3435							3440					3445			
gat	tgc	cct	gag	gtg	acc	tgc	gcc	ccc	aac	cag	ttc	cag	tgc	tcc	10827
Asp	Cys	Pro	Glu	Val	Thr	Cys	Ala	Pro	Asn	Gln	Phe	Gln	Cys	Ser	
3450							3455					3460			
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Ile	Thr	Lys	Arg	Cys	Ile	Pro	Arg	Val	Trp	Val	Cys	Asp	Arg	Asp	
3465							3470					3475			
aat	cac	tgt	gtg	gac	ggc	agt	gat	gag	cct	gcc	aac	tgt	acc	caa	10917
Asn	His	Cys	Val	Asp	Gly	Ser	Asp	Glu	Pro	Ala	Asn	Cys	Thr	Gln	
3480							3485					3490			
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Met	Thr	Cys	Gly	Val	Asp	Glu	Phe	Arg	Cys	Lys	Asp	Ser	Gly	Arg	
3495							3500					3505			
tgc	atc	ccc	gcg	cgc	tgg	aag	tgt	gac	gga	gaa	gat	gac	tgt	ggg	11007
Cys	Ile	Pro	Ala	Arg	Trp	Lys	Cys	Asp	Gly	Glu	Asp	Asp	Cys	Gly	
3510							3515					3520			
gat	ggt	tca	gat	gag	ccc	aag	gaa	gag	tgt	gat	gag	cgc	acc	tgt	11052
Asp	Gly	Ser	Asp	Glu	Pro	Lys	Glu	Glu	Cys	Asp	Glu	Arg	Thr	Cys	
3525							3530					3535			
gag	cca	tac	cag	ttc	cgc	tgc	aaa	aac	aac	cgc	tgt	gtc	cca	ggc	11097
Glu	Pro	Tyr	Gln	Phe	Arg	Cys	Lys	Asn	Asn	Arg	Cys	Val	Pro	Gly	

3540	3545	3550	
cgt tgg caa    tgg gac tac gac aac	gac tgc gga gat aac	tcg gac	11142
Arg Trp Gln    Cys Asp Tyr Asp Asn	Asp Cys Gly Asp Asn	Ser Asp	
3555	3560	3565	
gag gag agc    tgc aca cct cgg ccc	tgc tct gag agt gag	ttt ttc	11187
Glu Glu Ser    Cys Thr Pro Arg Pro	Cys Ser Glu Ser Glu	Phe Phe	
3570	3575	3580	
tgt gcc aat    ggc cgc tgc atc gct	ggg cgc tgg aag tgt	gat ggg	11232
Cys Ala Asn    Gly Arg Cys Ile Ala	Gly Arg Trp Lys Cys	Asp Gly	
3585	3590	3595	
gac cat gac    tgt gcc gac ggc tca	gac gag aaa gac tgc	acc ccc	11277
Asp His Asp    Cys Ala Asp Gly Ser	Asp Glu Lys Asp Cys	Thr Pro	
3600	3605	3610	
cgc tgt gat    atg gac cag ttc cag	tgc aag agt ggc cac	tgc atc	11322
Arg Cys Asp    Met Asp Gln Phe Gln	Cys Lys Ser Gly His	Cys Ile	
3615	3620	3625	
ccc ctg cgc    tgg ccg tgt gac gcg	gat gct gac tgt atg	gac ggc	11367
Pro Leu Arg    Trp Pro Cys Asp Ala	Asp Ala Asp Cys Met	Asp Gly	
3630	3635	3640	
agt gac gag    gaa gcc tgt ggc act	ggg gtg agg acc tgc	cca ttg	11412
Ser Asp Glu    Glu Ala Cys Gly Thr	Gly Val Arg Thr Cys	Pro Leu	
3645	3650	3655	
gat gag ttt    caa tgt aac aac acc	ttg tgc aag ccg ctg	gcc tgg	11457
Asp Glu Phe    Gln Cys Asn Asn Thr	Leu Cys Lys Pro Leu	Ala Trp	
3660	3665	3670	
aag tgt gat    gga gag gac gac tgt	ggg gac aac tca gat	gag aac	11502
Lys Cys Asp    Gly Glu Asp Asp Cys	Gly Asp Asn Ser Asp	Glu Asn	
3675	3680	3685	
ccc gag gaa    tgc gcc cgg ttc atc	tgc cct ccc aac cgg	cct ttc	11547
Pro Glu Glu    Cys Ala Arg Phe Ile	Cys Pro Pro Asn Arg	Pro Phe	
3690	3695	3700	
cgc tgc aag    aat gac cga gtc tgc	ctg tgg att ggg cgc	cag tgt	11592
Arg Cys Lys    Asn Asp Arg Val Cys	Leu Trp Ile Gly Arg	Gln Cys	
3705	3710	3715	
gat ggc gtg    gac aac tgt gga gat	ggg act gac gag gag	gac tgt	11637
Asp Gly Val    Asp Asn Cys Gly Asp	Gly Thr Asp Glu Glu	Asp Cys	
3720	3725	3730	
gag ccc ccc    acg gcc cag aac ccc	cac tgc aaa gac aag	aag gag	11682
Glu Pro Pro    Thr Ala Gln Asn Pro	His Cys Lys Asp Lys	Lys Glu	
3735	3740	3745	
ttc ctg tgc    cga aac cag cgc tgt	cta tca tcc tcc ctg	cgc tgt	11727
Phe Leu Cys    Arg Asn Gln Arg Cys	Leu Ser Ser Ser Leu	Arg Cys	
3750	3755	3760	
aac atg ttc    gat gac tgc ggc gat	ggc tcc gat gaa gaa	gat tgc	11772
Asn Met Phe    Asp Asp Cys Gly Asp	Gly Ser Asp Glu Glu	Asp Cys	
3765	3770	3775	

agc atc gac	ccc aag ctg acc agc	tgt gcc acc aat gcc	agc atg	11817
Ser Ile Asp	Pro Lys Leu Thr Ser	Cys Ala Thr Asn Ala	Ser Met	
3780	3785	3790		
tgt ggg gac	gaa gct cgt tgt gtg	cgc act gag aaa gct	gcc tac	11862
Cys Gly Asp	Glu Ala Arg Cys Val	Arg Thr Glu Lys Ala	Ala Tyr	
3795	3800	3805		
tgt gcc tgc	cgc tcg ggc ttc cat	act gtg ccg ggc cag	ccc gga	11907
Cys Ala Cys	Arg Ser Gly Phe His	Thr Val Pro Gly Gln	Pro Gly	
3810	3815	3820		
tgc cag gac	atc aac gag tgc ctg	cgc ttt ggt acc tgc	tct cag	11952
Cys Gln Asp	Ile Asn Glu Cys Leu	Arg Phe Gly Thr Cys	Ser Gln	
3825	3830	3835		
ctc tgg aac	aaa ccc aag gga ggc	cac ctc tgc agc tgt	gcc cgc	11997
Leu Trp Asn	Lys Pro Lys Gly Gly	His Leu Cys Ser Cys	Ala Arg	
3840	3845	3850		
aac ttc atg	aag aca cac aac acc	tgc aaa gct gaa ggc	tcc gag	12042
Asn Phe Met	Lys Thr His Asn Thr	Cys Lys Ala Glu Gly	Ser Glu	
3855	3860	3865		
tac cag gtg	cta tac atc gcg gat	gac aac gag atc cgc	agc ttg	12087
Tyr Gln Val	Leu Tyr Ile Ala Asp	Asp Asn Glu Ile Arg	Ser Leu	
3870	3875	3880		
ttc ccg ggc	cac ccc cac tca gcc	tac gag cag aca ttc	cag ggc	12132
Phe Pro Gly	His Pro His Ser Ala	Tyr Glu Gln Thr Phe	Gln Gly	
3885	3890	3895		
gat gag agt	gtc cgc ata gat gcc	atg gat gtc cat gtc	aag gcc	12177
Asp Glu Ser	Val Arg Ile Asp Ala	Met Asp Val His Val	Lys Ala	
3900	3905	3910		
ggc cgt gtc	tac tgg act aac tgg	cac acg ggc aca atc	tcc tac	12222
Gly Arg Val	Tyr Trp Thr Asn Trp	His Thr Gly Thr Ile	Ser Tyr	
3915	3920	3925		
agg agc ctg	ccc cct gcc gcc cct	cct acc act tcc aac	cgc cac	12267
Arg Ser Leu	Pro Pro Ala Ala Pro	Pro Thr Thr Ser Asn	Arg His	
3930	3935	3940		
cgg agg cag	atc gac cgg ggt gtc	acc cac ctc aat att	tca ggg	12312
Arg Arg Gln	Ile Asp Arg Gly Val	Thr His Leu Asn Ile	Ser Gly	
3945	3950	3955		
ctg aag atg	ccg agg ggt atc gct	atc gac tgg gtg gcc	ggg aat	12357
Leu Lys Met	Pro Arg Gly Ile Ala	Ile Asp Trp Val Ala	Gly Asn	
3960	3965	3970		
gtg tac tgg	acc gat tcc ggc cga	gac gtg att gag gtg	gcg caa	12402
Val Tyr Trp	Thr Asp Ser Gly Arg	Asp Val Ile Glu Val	Ala Gln	
3975	3980	3985		
atg aag ggc	gag aac cgc aag acg	ctc atc tcg ggc atg	att gat	12447
Met Lys Gly	Glu Asn Arg Lys Thr	Leu Ile Ser Gly Met	Ile Asp	
3990	3995	4000		

gag	ccc	cat	gcc	atc	gtg	gtg	gac	cct	ctg	agg	ggc	acc	atg	tac	12492
Glu	Pro	His	Ala	Ile	Val	Val	Asp	Pro	Leu	Arg	Gly	Thr	Met	Tyr	
4005					4010							4015			
tgg	tca	gac	tgg	ggg	aac	cac	ccc	aag	att	gaa	aca	gca	gcg	atg	12537
Trp	Ser	Asp	Trp	Gly	Asn	His	Pro	Lys	Ile	Glu	Thr	Ala	Ala	Met	
4020					4025							4030			
gat	ggc	acc	ctt	cgg	gag	act	ctc	gtg	caa	gac	aac	att	cag	tgg	12582
Asp	Gly	Thr	Leu	Arg	Glu	Thr	Leu	Val	Gln	Asp	Asn	Ile	Gln	Trp	
4035					4040							4045			
cct	aca	ggg	ctg	gct	gtg	gac	tat	cac	aat	gaa	cgg	ctc	tac	tgg	12627
Pro	Thr	Gly	Leu	Ala	Val	Asp	Tyr	His	Asn	Glu	Arg	Leu	Tyr	Trp	
4050					4055							4060			
gca	gat	gcc	aag	ctt	tcg	gtc	atc	ggc	agc	atc	cgg	ctc	aac	ggc	12672
Ala	Asp	Ala	Lys	Leu	Ser	Val	Ile	Gly	Ser	Ile	Arg	Leu	Asn	Gly	
4065					4070							4075			
act	gac	ccc	att	gtg	gct	gct	gac	agc	aaa	cga	ggc	cta	agt	cac	12717
Thr	Asp	Pro	Ile	Val	Ala	Ala	Asp	Ser	Lys	Arg	Gly	Leu	Ser	His	
4080					4085							4090			
ccc	ttc	agc	atc	gat	gtg	ttt	gaa	gac	tac	atc	tac	gga	gtc	act	12762
Pro	Phe	Ser	Ile	Asp	Val	Phe	Glu	Asp	Tyr	Ile	Tyr	Gly	Val	Thr	
4095					4100							4105			
tac	atc	aat	aat	cgt	gtc	ttc	aag	atc	cac	aag	ttt	gga	cac	agc	12807
Tyr	Ile	Asn	Asn	Arg	Val	Phe	Lys	Ile	His	Lys	Phe	Gly	His	Ser	
4110					4115							4120			
ccc	ttg	tac	aac	cta	act	ggg	ggc	ctg	agc	cat	gcc	tct	gat	gta	12852
Pro	Leu	Tyr	Asn	Leu	Thr	Gly	Gly	Leu	Ser	His	Ala	Ser	Asp	Val	
4125					4130							4135			
gtc	ctt	tac	cat	caa	cac	aag	cag	cct	gaa	gtg	acc	aac	ccc	tgt	12897
Val	Leu	Tyr	His	Gln	His	Lys	Gln	Pro	Glu	Val	Thr	Asn	Pro	Cys	
4140					4145							4150			
gac	cgc	aag	aaa	tgc	gaa	tgg	ctg	tgt	ctg	ctg	agc	ccc	agc	ggg	12942
Asp	Arg	Lys	Lys	Cys	Glu	Trp	Leu	Cys	Leu	Leu	Ser	Pro	Ser	Gly	
4155					4160							4165			
cct	gtc	tgc	acc	tgt	ccc	aat	gga	aag	agg	ctg	gat	aat	ggc	acc	12987
Pro	Val	Cys	Thr	Cys	Pro	Asn	Gly	Lys	Arg	Leu	Asp	Asn	Gly	Thr	
4170					4175							4180			
tgt	gtg	cct	gtg	ccc	tct	cca	aca	ccc	cct	cca	gat	gcc	cct	agg	13032
Cys	Val	Pro	Val	Pro	Ser	Pro	Thr	Pro	Pro	Pro	Asp	Ala	Pro	Arg	
4185					4190							4195			
cct	gga	acc	tgc	act	ctg	cag	tgc	ttc	aat	ggt	ggt	agt	tgt	ttc	13077
Pro	Gly	Thr	Cys	Thr	Leu	Gln	Cys	Phe	Asn	Gly	Gly	Ser	Cys	Phe	
4200					4205							4210			
ctc	aac	gct	cgg	agg	cag	ccc	aag	tgc	cgt	tgc	cag	ccc	cgt	tac	13122
Leu	Asn	Ala	Arg	Arg	Gln	Pro	Lys	Cys	Arg	Cys	Gln	Pro	Arg	Tyr	
4215					4220							4225			
aca	ggc	gat	aag	tgt	gag	ctg	gat	cag	tgc	tgg	gaa	tac	tgt	cac	13167

Thr	Gly	Asp	Lys	Cys	Glu	Leu	Asp	Gln	Cys	Trp	Glu	Tyr	Cys	His	
4230							4235						4240		
aac	gga	ggc	acc	tgt	gcg	gct	tcc	cca	tct	ggc	atg	ccc	acg	tgc	13212
Asn	Gly	Gly	Thr	Cys	Ala	Ala	Ser	Pro	Ser	Gly	Met	Pro	Thr	Cys	
4245							4250						4255		
cgc	tgt	ccc	act	ggc	tcc	acg	ggc	ccc	aaa	tgc	acc	gca	cag	gtg	13257
Arg	Cys	Pro	Thr	Gly	Phe	Thr	Gly	Pro	Lys	Cys	Thr	Ala	Gln	Val	
4260							4265						4270		
tgt	gca	ggc	tac	tgc	tct	aac	aac	agc	acc	tgc	acc	gtc	aac	cag	13302
Cys	Ala	Gly	Tyr	Cys	Ser	Asn	Asn	Ser	Thr	Cys	Thr	Val	Asn	Gln	
4275							4280						4285		
ggc	aac	cag	ccc	cag	tgc	cga	tgt	cta	cct	ggc	ttc	ctg	ggc	gac	13347
Gly	Asn	Gln	Pro	Gln	Cys	Arg	Cys	Leu	Pro	Gly	Phe	Leu	Gly	Asp	
4290							4295						4300		
cgt	tgc	cag	tac	cgg	cag	tgc	tct	ggc	ttc	tgt	gag	aac	ttt	ggc	13392
Arg	Cys	Gln	Tyr	Arg	Gln	Cys	Ser	Gly	Phe	Cys	Glu	Asn	Phe	Gly	
4305							4310						4315		
acc	tgt	cag	atg	gct	gct	gat	ggc	tcc	cga	caa	tgt	cgc	tgc	acc	13437
Thr	Cys	Gln	Met	Ala	Ala	Asp	Gly	Ser	Arg	Gln	Cys	Arg	Cys	Thr	
4320							4325						4330		
gtc	tac	ttt	gag	gga	cca	agg	tgt	gag	gtg	aac	aag	tgt	agt	cgc	13482
Val	Tyr	Phe	Glu	Gly	Pro	Arg	Cys	Glu	Val	Asn	Lys	Lys	Cys	Ser	
4335							4340						4345		
tgt	ctc	caa	ggc	gcc	tgt	gtg	gtc	aat	aag	cag	acc	gga	gat	gtc	13527
Cys	Leu	Gln	Gly	Ala	Cys	Val	Val	Asn	Lys	Gln	Thr	Gly	Asp	Val	
4350							4355						4360		
aca	tgc	aac	tgc	act	gat	ggc	cgg	gta	gcc	ccc	agt	tgt	ctc	acc	13572
Thr	Cys	Asn	Cys	Thr	Asp	Gly	Arg	Val	Ala	Pro	Ser	Cys	Leu	Thr	
4365							4370						4375		
tgc	atc	gat	cac	tgt	agc	aat	ggt	ggc	tcc	tgc	acc	atg	aac	agc	13617
Cys	Ile	Asp	His	Cys	Ser	Asn	Gly	Gly	Ser	Cys	Thr	Met	Asn	Ser	
4380							4385						4390		
aag	atg	atg	cct	gag	tgc	cag	tgc	ccg	ccc	cat	atg	aca	gga	ccc	13662
Lys	Met	Met	Pro	Glu	Cys	Gln	Cys	Pro	Pro	His	Met	Thr	Gly	Pro	
4395							4400						4405		
cgg	tgc	cag	gag	cag	gtt	gtt	agt	cag	caa	cag	cct	ggg	cat	atg	13707
Arg	Cys	Gln	Glu	Gln	Val	Val	Ser	Gln	Gln	Gln	Pro	Gly	His	Met	
4410							4415						4420		
gcc	tcc	atc	ctg	atc	cct	ctg	ctg	ctg	ctt	ctt	ctc	ctg	ctt	ctg	13752
Ala	Ser	Ile	Leu	Ile	Pro	Leu	Leu	Leu	Leu	Leu	Leu	Leu	Leu	Leu	
4425							4430						4435		
gtg	gct	ggc	gtg	gtg	ttc	tgg	tat	aag	cgg	cga	gtc	cga	ggg	gct	13797
Val	Ala	Gly	Val	Val	Phe	Trp	Tyr	Lys	Arg	Arg	Val	Arg	Gly	Ala	
4440							4445						4450		
aag	ggc	ttc	cag	cac	cag	cg	atg	acc	aat	ggg	gcc	atg	aat	gtg	13842
Lys	Gly	Phe	Gln	His	Gln	Arg	Met	Thr	Asn	Gly	Ala	Met	Asn	Val	

4455	4460	4465	
gaa att gga aac cct acc tac aag	atg tat gaa ggt gga gag ccc		13887
Glu Ile Gly Asn Pro Thr Tyr Lys	Met Tyr Glu Gly Gly Glu Pro		
4470	4475	4480	
gat gat gtc ggg ggc cta ctg gat	gct gat ttt gcc ctt gac cct		13932
Asp Asp Val Gly Gly Leu Leu Asp	Ala Asp Phe Ala Leu Asp Pro		
4485	4490	4495	
gac aag cct acc aac ttc acc aac	cca gtg tat gcc acg ctc tac		13977
Asp Lys Pro Thr Asn Phe Thr Asn	Pro Val Tyr Ala Thr Leu Tyr		
4500	4505	4510	
atg ggg ggc cac ggc agc cgc cat	tcc ctg gcc agc acg gac gag		14022
Met Gly Gly His Gly Ser Arg His	Ser Leu Ala Ser Thr Asp Glu		
4515	4520	4525	
aag cga gaa ctg ctg ggc cgg gga	cct gaa gac gag ata gga gat		14067
Lys Arg Glu Leu Leu Gly Arg Gly	Pro Glu Asp Glu Ile Gly Asp		
4530	4535	4540	
ccc ttg gca tag ggccctgccc cgacggatgt ccccagaaag cccctgcca			14119
Pro Leu Ala			
4545			
catgagtctt tcaatgaacc ccctccccag ccggcccttc tccggccctg ccgggtgtac			14179
aaatgtaaaa atgaaggaat tacttttat atgtgagcga gcaagcgagc aagcacagta			14239
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gggcggggag ggctttgtgg ctcaaaggta tgaaggagtc cacatgttcc ctaccgagca			14359
taccctgga agcctggcgg cacggcctcc ccaccacgcc tgtgcaagac actcaacggg			14419
gctccgtgtc ccagctttcc tttccttggc tctctgggt tagttcaggg gaggtggagt			14479
cctctgctga ccctgtctgg aagatttggc tctagctgag gaaggagtct ttttagttgag			14539
ggaagtcacc ccaaacccta gctcccactt tcagggcac ctctcagatg gccatgctca			14599
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acacattctt tggtaactgt ccccaagcc tcccatcccc ctgagggcca ggaagagtcg			14719
gggcacacca aggaagggca agcgggcagc cccattttgg ggacgtgaac gttttaataa			14779
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aaaaaaaaaa			14849

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 <211> 4545  
 <212> PRT  
 <213> Mus sp.

<400> 2

Met Leu Thr Pro Pro Leu Leu Leu Leu Val Pro Leu Leu Ser Ala Leu  
 1 5 10 15

Val Ser Gly Ala Thr Met Asp Ala Pro Lys Thr Cys Ser Pro Lys Gln  
 20 25 30

Phe Ala Cys Arg Asp Gln Ile Thr Cys Ile Ser Lys Gly Trp Arg Cys  
 35 40 45

Asp Gly Glu Arg Asp Cys Pro Asp Gly Ser Asp Glu Ala Pro Glu Ile  
 50 55 60

Cys Pro Gln Ser Lys Ala Gln Arg Cys Pro Pro Asn Glu His Ser Cys  
 65 70 75 80

Leu Gly Thr Glu Leu Cys Val Pro Met Ser Arg Leu Cys Asn Gly Ile  
 85 90 95

Gln Asp Cys Met Asp Gly Ser Asp Glu Gly Ala His Cys Arg Glu Leu  
 100 105 110

Arg Ala Asn Cys Ser Arg Met Gly Cys Gln His His Cys Val Pro Thr  
 115 120 125

Pro Ser Gly Pro Thr Cys Tyr Cys Asn Ser Ser Phe Gln Leu Glu Ala  
 130 135 140

Asp Gly Lys Thr Cys Lys Asp Phe Asp Glu Cys Ser Val Tyr Gly Thr  
 145 150 155 160

Cys Ser Gln Leu Cys Thr Asn Thr Asp Gly Ser Phe Thr Cys Gly Cys  
 165 170 175

Val Glu Gly Tyr Leu Leu Gln Pro Asp Asn Arg Ser Cys Lys Ala Lys  
 180 185 190

Asn Glu Pro Val Asp Arg Pro Pro Val Leu Leu Ile Ala Asn Ser Gln  
 195 200 205

Asn Ile Leu Ala Thr Tyr Leu Ser Gly Ala Gln Val Ser Thr Ile Thr  
 210 215 220

Pro Thr Ser Thr Arg Gln Thr Thr Ala Met Asp Phe Ser Tyr Ala Asn  
 225 230 235 240

Glu Thr Val Cys Trp Val His Val Gly Asp Ser Ala Ala Gln Thr Gln  
 245 250 255

Leu Lys Cys Ala Arg Met Pro Gly Leu Lys Gly Phe Val Asp Glu His  
 260 265 270

Thr Ile Asn Ile Ser Leu Ser Leu His His Val Glu Gln Met Ala Ile  
 275 280 285

Asp Trp Leu Thr Gly Asn Phe Tyr Phe Val Asp Asp Ile Asp Asp Arg  
 290 295 300

Ile Phe Val Cys Asn Arg Asn Gly Asp Thr Cys Val Thr Leu Leu Asp  
 305 310 315 320

Leu Glu Leu Tyr Asn Pro Lys Gly Ile Ala Leu Asp Pro Ala Met Gly

325	330	335
Lys Val Phe Phe Thr Asp Tyr Gly Gln Ile Pro Lys Val Glu Arg Cys		
340	345	350
Asp Met Asp Gly Gln Asn Arg Thr Lys Leu Val Asp Ser Lys Ile Val		
355	360	365
Phe Pro His Gly Ile Thr Leu Asp Leu Val Ser Arg Leu Val Tyr Trp		
370	375	380
Ala Asp Ala Tyr Leu Asp Tyr Ile Glu Val Val Asp Tyr Glu Gly Lys		
385	390	395
Gly Arg Gln Thr Ile Ile Gln Gly Ile Leu Ile Glu His Leu Tyr Gly		
405	410	415
Leu Thr Val Phe Glu Asn Tyr Leu Tyr Ala Thr Asn Ser Asp Asn Ala		
420	425	430
Asn Thr Gln Gln Lys Thr Ser Val Ile Arg Val Asn Arg Phe Asn Ser		
435	440	445
Thr Glu Tyr Gln Val Val Thr Arg Val Asp Lys Gly Gly Ala Leu His		
450	455	460
Ile Tyr His Gln Arg Arg Gln Pro Arg Val Arg Ser His Ala Cys Glu		
465	470	475
Asn Asp Gln Tyr Gly Lys Pro Gly Gly Cys Ser Asp Ile Cys Leu Leu		
485	490	495
Ala Asn Ser His Lys Ala Arg Thr Cys Arg Cys Arg Ser Gly Phe Ser		
500	505	510
Leu Gly Ser Asp Gly Lys Ser Cys Lys Lys Pro Glu His Glu Leu Phe		
515	520	525
Leu Val Tyr Gly Lys Gly Arg Pro Gly Ile Ile Arg Gly Met Asp Met		
530	535	540
Gly Ala Lys Val Pro Asp Glu His Met Ile Pro Ile Glu Asn Leu Met		
545	550	560
Asn Pro Arg Ala Leu Asp Phe His Ala Glu Thr Gly Phe Ile Tyr Phe		
565	570	575
Ala Asp Thr Thr Ser Tyr Leu Ile Gly Arg Gln Lys Ile Asp Gly Thr		
580	585	590
Glu Arg Glu Thr Ile Leu Lys Asp Gly Ile His Asn Val Glu Gly Val		
595	600	605
Ala Val Asp Trp Met Gly Asp Asn Leu Tyr Trp Thr Asp Asp Gly Pro		
610	615	620
Lys Lys Thr Ile Ser Val Ala Arg Leu Glu Lys Ala Ala Gln Thr Arg		
625	630	640
Lys Thr Leu Ile Glu Gly Lys Met Thr His Pro Arg Ala Ile Val Val		
645	650	655

Asp	Pro	Leu	Asn	Gly	Trp	Met	Tyr	Trp	Thr	Asp	Trp	Glu	Glu	Asp	Pro
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Lys	Asp	Ser	Arg	Arg	Gly	Arg	Leu	Glu	Arg	Ala	Trp	Met	Asp	Gly	Ser
675							680						685		
His	Arg	Asp	Ile	Phe	Val	Thr	Ser	Lys	Thr	Val	Leu	Trp	Pro	Asn	Gly
690							695				700				
Leu	Ser	Leu	Asp	Ile	Pro	Ala	Gly	Arg	Leu	Tyr	Trp	Val	Asp	Ala	Phe
705					710					715				720	
Tyr	Asp	Arg	Ile	Glu	Thr	Ile	Leu	Leu	Asn	Gly	Thr	Asp	Arg	Lys	Ile
725									730				735		
Val	Tyr	Glu	Gly	Pro	Glu	Leu	Asn	His	Ala	Phe	Gly	Leu	Cys	His	His
740							745						750		
Gly	Asn	Tyr	Leu	Phe	Trp	Thr	Glu	Tyr	Arg	Ser	Gly	Ser	Val	Tyr	Arg
755							760					765			
Leu	Glu	Arg	Gly	Val	Ala	Gly	Ala	Pro	Pro	Thr	Val	Thr	Leu	Leu	Arg
770							775					780			
Ser	Glu	Arg	Pro	Pro	Ile	Phe	Glu	Ile	Arg	Met	Tyr	Asp	Ala	His	Glu
785					790					795				800	
Gln	Gln	Val	Gly	Thr	Asn	Lys	Cys	Arg	Val	Asn	Asn	Gly	Gly	Cys	Ser
805									810				815		
Ser	Leu	Cys	Leu	Ala	Thr	Pro	Gly	Ser	Arg	Gln	Cys	Ala	Cys	Ala	Glu
820								825					830		
Asp	Gln	Val	Leu	Asp	Thr	Asp	Gly	Val	Thr	Cys	Leu	Ala	Asn	Pro	Ser
835							840					845			
Tyr	Val	Pro	Pro	Pro	Gln	Cys	Gln	Pro	Gly	Gln	Phe	Ala	Cys	Ala	Asn
850							855					860			
Asn	Arg	Cys	Ile	Gln	Glu	Arg	Trp	Lys	Cys	Asp	Gly	Asp	Asn	Asp	Cys
865					870					875				880	
Leu	Asp	Asn	Ser	Asp	Glu	Ala	Pro	Ala	Leu	Cys	His	Gln	His	Thr	Cys
885									890				895		
Pro	Ser	Asp	Arg	Phe	Lys	Cys	Glu	Asn	Asn	Arg	Cys	Ile	Pro	Asn	Arg
900							905						910		
Trp	Leu	Cys	Asp	Gly	Asp	Asn	Asp	Cys	Gly	Asn	Ser	Glu	Asp	Glu	Ser
915							920					925			
Asn	Ala	Thr	Cys	Ser	Ala	Arg	Thr	Cys	Pro	Pro	Asn	Gln	Phe	Ser	Cys
930							935						940		
Ala	Ser	Gly	Arg	Cys	Ile	Pro	Ile	Ser	Trp	Thr	Cys	Asp	Leu	Asp	Asp
945							950					955			960
Asp	Cys	Gly	Asp	Arg	Ser	Asp	Glu	Ser	Ala	Ser	Cys	Ala	Tyr	Pro	Thr
965									970				975		

Cys Phe Pro Leu Thr Gln Phe Thr Cys Asn Asn Gly Arg Cys Ile Asn  
 980 985 990  
 Ile Asn Trp Arg Cys Asp Asn Asp Asn Asp Cys Gly Asp Asn Ser Asp  
 995 1000 1005  
 Glu Ala Gly Cys Ser His Ser Cys Ser Ser Thr Gln Phe Lys Cys  
 1010 1015 1020  
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 1040 1045 1050  
 Asn Gln Ala Thr Arg Pro Pro Gly Gly Cys His Ser Asp Glu Phe  
 1055 1060 1065  
 Gln Cys Pro Leu Asp Gly Leu Cys Ile Pro Leu Arg Trp Arg Cys  
 1070 1075 1080  
 Asp Gly Asp Thr Asp Cys Met Asp Ser Ser Asp Glu Lys Ser Cys  
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 Glu Gly Val Thr His Val Cys Asp Pro Asn Val Lys Phe Gly Cys  
 1100 1105 1110  
 Lys Asp Ser Ala Arg Cys Ile Ser Lys Ala Trp Val Cys Asp Gly  
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 Asp Ser Asp Cys Glu Asp Asn Ser Asp Glu Glu Asn Cys Glu Ala  
 1130 1135 1140  
 Leu Ala Cys Arg Pro Pro Ser His Pro Cys Ala Asn Asn Thr Ser  
 1145 1150 1155  
 Val Cys Leu Pro Pro Asp Lys Leu Cys Asp Gly Lys Asp Asp Cys  
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 Gly Asp Gly Ser Asp Glu Gly Glu Leu Cys Asp Gln Cys Ser Leu  
 1175 1180 1185  
 Asn Asn Gly Gly Cys Ser His Asn Cys Ser Val Ala Pro Gly Glu  
 1190 1195 1200  
 Gly Ile Val Cys Ser Cys Pro Leu Gly Met Glu Leu Gly Ser Asp  
 1205 1210 1215  
 Asn His Thr Cys Gln Ile Gln Ser Tyr Cys Ala Lys His Leu Lys  
 1220 1225 1230  
 Cys Ser Gln Lys Cys Asp Gln Asn Lys Phe Ser Val Lys Cys Ser  
 1235 1240 1245  
 Cys Tyr Glu Gly Trp Val Leu Glu Pro Asp Gly Glu Thr Cys Arg  
 1250 1255 1260  
 Ser Leu Asp Pro Phe Lys Leu Phe Ile Ile Phe Ser Asn Arg His  
 1265 1270 1275  
 Glu Ile Arg Arg Ile Asp Leu His Lys Gly Asp Tyr Ser Val Leu

1280	1285	1290
Val Pro Gly Leu Arg Asn Thr	Ile Ala Leu Asp Phe His Leu Ser	
1295	1300	1305
Gln Ser Ala Leu Tyr Trp Thr	Asp Ala Val Glu Asp Lys Ile Tyr	
1310	1315	1320
Arg Gly Lys Leu Leu Asp Asn	Gly Ala Leu Thr Ser Phe Glu Val	
1325	1330	1335
Val Ile Gln Tyr Gly Leu Ala	Thr Pro Glu Gly Leu Ala Val Asp	
1340	1345	1350
Trp Ile Ala Gly Asn Ile Tyr	Trp Val Glu Ser Asn Leu Asp Gln	
1355	1360	1365
Ile Glu Val Ala Lys Leu Asp	Gly Thr Leu Arg Thr Thr Leu Leu	
1370	1375	1380
Ala Gly Asp Ile Glu His Pro	Arg Ala Ile Ala Leu Asp Pro Arg	
1385	1390	1395
Asp Gly Ile Leu Phe Trp Thr	Asp Trp Asp Ala Ser Leu Pro Arg	
1400	1405	1410
Ile Glu Ala Ala Ser Met Ser	Gly Ala Gly Arg Arg Thr Ile His	
1415	1420	1425
Arg Glu Thr Gly Ser Gly Gly	Cys Ala Asn Gly Leu Thr Val Asp	
1430	1435	1440
Tyr Leu Glu Lys Arg Ile Leu	Trp Ile Asp Ala Arg Ser Asp Ala	
1445	1450	1455
Ile Tyr Ser Ala Arg Tyr Asp	Gly Ser Gly His Met Glu Val Leu	
1460	1465	1470
Arg Gly His Glu Phe Leu Ser	His Pro Phe Ala Val Thr Leu Tyr	
1475	1480	1485
Gly Gly Glu Val Tyr Trp Thr	Asp Trp Arg Thr Asn Thr Leu Ala	
1490	1495	1500
Lys Ala Asn Lys Trp Thr Gly	His Asn Val Thr Val Val Gln Arg	
1505	1510	1515
Thr Asn Thr Gln Pro Phe Asp	Leu Gln Val Tyr His Pro Ser Arg	
1520	1525	1530
Gln Pro Met Ala Pro Asn Pro	Cys Glu Ala Asn Gly Gly Arg Gly	
1535	1540	1545
Pro Cys Ser His Leu Cys Leu	Ile Asn Tyr Asn Arg Thr Val Ser	
1550	1555	1560
Trp Ala Cys Pro His Leu Met	Lys Leu His Lys Asp Asn Thr Thr	
1565	1570	1575
Cys Tyr Glu Phe Lys Lys Phe	Leu Leu Tyr Ala Arg Gln Met Glu	

1580	1585	1590
Ile Arg Gly Val Asp Leu Asp	Ala Pro Tyr Tyr Asn	Tyr Ile Ile
1595	1600	1605
Ser Phe Thr Val Pro Asp Ile	Asp Asn Val Thr Val	Leu Asp Tyr
1610	1615	1620
Asp Ala Arg Glu Gln Arg Val	Tyr Trp Ser Asp Val	Arg Thr Gln
1625	1630	1635
Ala Ile Lys Arg Ala Phe Ile	Asn Gly Thr Gly Val	Glu Thr Val
1640	1645	1650
Val Ser Ala Asp Leu Pro Asn	Ala His Gly Leu Ala	Val Asp Trp
1655	1660	1665
Val Ser Arg Asn Leu Phe Trp	Thr Ser Tyr Asp Thr	Asn Lys Lys
1670	1675	1680
Gln Ile Asn Val Ala Arg Leu	Asp Gly Ser Phe Lys	Asn Ala Val
1685	1690	1695
Val Gln Gly Leu Glu Gln Pro	His Gly Leu Val Val	His Pro Leu
1700	1705	1710
Arg Gly Lys Leu Tyr Trp Thr	Asp Gly Asp Asn Ile	Ser Met Ala
1715	1720	1725
Asn Met Asp Gly Ser Asn His	Thr Leu Leu Phe Ser	Gly Gln Lys
1730	1735	1740
Gly Pro Val Gly Leu Ala Ile	Asp Phe Pro Glu Ser	Lys Leu Tyr
1745	1750	1755
Trp Ile Ser Ser Gly Asn His	Thr Ile Asn Arg Cys	Asn Leu Asp
1760	1765	1770
Gly Ser Glu Leu Glu Val Ile	Asp Thr Met Arg Ser	Gln Leu Gly
1775	1780	1785
Lys Ala Thr Ala Leu Ala Ile	Met Gly Asp Lys Leu	Trp Trp Ala
1790	1795	1800
Asp Gln Val Ser Glu Lys Met	Gly Thr Cys Asn Lys	Ala Asp Gly
1805	1810	1815
Ser Gly Ser Val Val Leu Arg	Asn Ser Thr Thr Leu	Val Met His
1820	1825	1830
Met Lys Val Tyr Asp Glu Ser	Ile Gln Leu Glu His	Glu Gly Thr
1835	1840	1845
Asn Pro Cys Ser Val Asn Asn	Gly Asp Cys Ser Gln	Leu Cys Leu
1850	1855	1860
Pro Thr Ser Glu Thr Thr Arg	Ser Cys Met Cys Thr	Ala Gly Tyr
1865	1870	1875
Ser Leu Arg Ser Gly Gln Gln	Ala Cys Glu Gly Val	Gly Ser Phe
1880	1885	1890

Leu	Leu	Tyr	Ser	Val	His	Glu	Gly	Ile	Arg	Gly	Ile	Pro	Leu	Asp
1895						1900					1905			
Pro	Asn	Asp	Lys	Ser	Asp	Ala	Leu	Val	Pro	Val	Ser	Gly	Thr	Ser
1910						1915					1920			
Leu	Ala	Val	Gly	Ile	Asp	Phe	His	Ala	Glu	Asn	Asp	Thr	Ile	Tyr
1925						1930					1935			
Trp	Val	Asp	Met	Gly	Leu	Ser	Thr	Ile	Ser	Arg	Ala	Lys	Arg	Asp
1940						1945					1950			
Gln	Thr	Trp	Arg	Glu	Asp	Val	Val	Thr	Asn	Gly	Ile	Gly	Arg	Val
1955						1960					1965			
Glu	Gly	Ile	Ala	Val	Asp	Trp	Ile	Ala	Gly	Asn	Ile	Tyr	Trp	Thr
1970						1975					1980			
Asp	Gln	Gly	Phe	Asp	Val	Ile	Glu	Val	Ala	Arg	Leu	Asn	Gly	Ser
1985						1990					1995			
Phe	Arg	Tyr	Val	Val	Ile	Ser	Gln	Gly	Leu	Asp	Lys	Pro	Arg	Ala
2000						2005					2010			
Ile	Thr	Val	His	Pro	Glu	Lys	Gly	Tyr	Leu	Phe	Trp	Thr	Glu	Trp
2015						2020					2025			
Gly	His	Tyr	Pro	Arg	Ile	Glu	Arg	Ser	Arg	Leu	Asp	Gly	Thr	Glu
2030						2035					2040			
Arg	Val	Val	Leu	Val	Asn	Val	Ser	Ile	Ser	Trp	Pro	Asn	Gly	Ile
2045						2050					2055			
Ser	Val	Asp	Tyr	Gln	Gly	Gly	Lys	Leu	Tyr	Trp	Cys	Asp	Ala	Arg
2060						2065					2070			
Met	Asp	Lys	Ile	Glu	Arg	Ile	Asp	Leu	Glu	Thr	Gly	Glu	Asn	Arg
2075						2080					2085			
Glu	Val	Val	Leu	Ser	Ser	Asn	Asn	Met	Asp	Met	Phe	Ser	Val	Ser
2090						2095					2100			
Val	Phe	Glu	Asp	Phe	Ile	Tyr	Trp	Ser	Asp	Arg	Thr	His	Ala	Asn
2105						2110					2115			
Gly	Ser	Ile	Lys	Arg	Gly	Cys	Lys	Asp	Asn	Ala	Thr	Asp	Ser	Val
2120						2125					2130			
Pro	Leu	Arg	Thr	Gly	Ile	Gly	Val	Gln	Leu	Lys	Asp	Ile	Lys	Val
2135						2140					2145			
Phe	Asn	Arg	Asp	Arg	Gln	Lys	Gly	Thr	Asn	Val	Cys	Ala	Val	Ala
2150						2155					2160			
Asn	Gly	Gly	Cys	Gln	Gln	Leu	Cys	Leu	Tyr	Arg	Gly	Gly	Gly	Gln
2165						2170					2175			
Arg	Ala	Cys	Ala	Cys	Ala	His	Gly	Met	Leu	Ala	Glu	Asp	Gly	Ala
2180						2185					2190			

Ser Cys Arg Glu Tyr Ala Gly Tyr Leu Leu Tyr Ser Glu Arg Thr  
 2195 2200 2205  
 Ile Leu Lys Ser Ile His Leu Ser Asp Glu Arg Asn Leu Asn Ala  
 2210 2215 2220  
 Pro Val Gln Pro Phe Glu Asp Pro Glu His Met Lys Asn Val Ile  
 2225 2230 2235  
 Ala Leu Ala Phe Asp Tyr Arg Ala Gly Thr Ser Pro Gly Thr Pro  
 2240 2245 2250  
 Asn Arg Ile Phe Phe Ser Asp Ile His Phe Gly Asn Ile Gln Gln  
 2255 2260 2265  
 Ile Asn Asp Asp Gly Ser Gly Arg Thr Thr Ile Val Glu Asn Val  
 2270 2275 2280  
 Gly Ser Val Glu Gly Leu Ala Tyr His Arg Gly Trp Asp Thr Leu  
 2285 2290 2295  
 Tyr Trp Thr Ser Tyr Thr Thr Ser Thr Ile Thr Arg His Thr Val  
 2300 2305 2310  
 Asp Gln Thr Arg Pro Gly Ala Phe Glu Arg Glu Thr Val Ile Thr  
 2315 2320 2325  
 Met Ser Gly Asp Asp His Pro Arg Ala Phe Val Leu Asp Glu Cys  
 2330 2335 2340  
 Gln Asn Leu Met Phe Trp Thr Asn Trp Asn Glu Leu His Pro Ser  
 2345 2350 2355  
 Ile Met Arg Ala Ala Leu Ser Gly Ala Asn Val Leu Thr Leu Ile  
 2360 2365 2370  
 Glu Lys Asp Ile Arg Thr Pro Asn Gly Leu Ala Ile Asp His Arg  
 2375 2380 2385  
 Ala Glu Lys Leu Tyr Phe Ser Asp Ala Thr Leu Asp Lys Ile Glu  
 2390 2395 2400  
 Arg Cys Glu Tyr Asp Gly Ser His Arg Tyr Val Ile Leu Lys Ser  
 2405 2410 2415  
 Glu Pro Val His Pro Phe Gly Leu Ala Val Tyr Gly Glu His Ile  
 2420 2425 2430  
 Phe Trp Thr Asp Trp Val Arg Arg Ala Val Gln Arg Ala Asn Lys  
 2435 2440 2445  
 Tyr Val Gly Ser Asp Met Lys Leu Leu Arg Val Asp Ile Pro Gln  
 2450 2455 2460  
 Gln Pro Met Gly Ile Ile Ala Val Ala Asn Asp Thr Asn Ser Cys  
 2465 2470 2475  
 Glu Leu Ser Pro Cys Arg Ile Asn Asn Gly Gly Cys Gln Asp Leu  
 2480 2485 2490  
 Cys Leu Leu Thr His Gln Gly His Val Asn Cys Ser Cys Arg Gly

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Gly Arg Ile Leu Gln Glu Asp	Phe Thr Cys Arg Ala	Val Asn Ser
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Ser Cys Arg Ala Gln Asp Glu	Phe Glu Cys Ala Asn	Gly Glu Cys
2525	2530	2535
Ile Ser Phe Ser Leu Thr Cys	Asp Gly Val Ser His	Cys Lys Asp
2540	2545	2550
Lys Ser Asp Glu Lys Pro Ser	Tyr Cys Asn Ser Arg	Arg Cys Lys
2555	2560	2565
Lys Thr Phe Arg Gln Cys Asn	Asn Gly Arg Cys Val	Ser Asn Met
2570	2575	2580
Leu Trp Cys Asn Gly Val Asp	Tyr Cys Gly Asp Gly	Ser Asp Glu
2585	2590	2595
Ile Pro Cys Asn Lys Thr Ala	Cys Gly Val Gly Glu	Phe Arg Cys
2600	2605	2610
Arg Asp Gly Ser Cys Ile Gly	Asn Ser Ser Arg Cys	Asn Gln Phe
2615	2620	2625
Val Asp Cys Glu Asp Ala Ser	Asp Glu Met Asn Cys	Ser Ala Thr
2630	2635	2640
Asp Cys Ser Ser Tyr Phe Arg	Leu Gly Val Lys Gly	Val Leu Phe
2645	2650	2655
Gln Pro Cys Glu Arg Thr Ser	Leu Cys Tyr Ala Pro	Ser Trp Val
2660	2665	2670
Cys Asp Gly Ala Asn Asp Cys	Gly Asp Tyr Ser Asp	Glu Arg Asp
2675	2680	2685
Cys Pro Gly Val Lys Arg Pro	Arg Cys Pro Leu Asn	Tyr Phe Ala
2690	2695	2700
Cys Pro Ser Gly Arg Cys Ile	Pro Met Ser Trp Thr	Cys Asp Lys
2705	2710	2715
Glu Asp Asp Cys Glu Asn Gly	Glu Asp Glu Thr His	Cys Asn Lys
2720	2725	2730
Phe Cys Ser Glu Ala Gln Phe	Glu Cys Gln Asn His	Arg Cys Ile
2735	2740	2745
Ser Lys Gln Trp Leu Cys Asp	Gly Ser Asp Asp Cys	Gly Asp Gly
2750	2755	2760
Ser Asp Glu Ala Ala His Cys	Glu Gly Lys Thr Cys	Gly Pro Ser
2765	2770	2775
Ser Phe Ser Cys Pro Gly Thr	His Val Cys Val Pro	Glu Arg Trp
2780	2785	2790
Leu Cys Asp Gly Asp Lys Asp	Cys Thr Asp Gly Ala	Asp Glu Ser
2795	2800	2805

Val	Thr	Ala	Gly	Cys	Leu	Tyr	Asn	Ser	Thr	Cys	Asp	Asp	Arg	Glu
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Phe	Met	Cys	Gln	Asn	Arg	Leu	Cys	Ile	Pro	Lys	His	Phe	Val	Cys
2825					2830						2835			
Asp	His	Asp	Arg	Asp	Cys	Ala	Asp	Gly	Ser	Asp	Glu	Ser	Pro	Glu
2840					2845						2850			
Cys	Glu	Tyr	Pro	Thr	Cys	Gly	Pro	Asn	Glu	Phe	Arg	Cys	Ala	Asn
2855					2860						2865			
Gly	Arg	Cys	Leu	Ser	Ser	Arg	Gln	Trp	Glu	Cys	Asp	Gly	Glu	Asn
2870					2875						2880			
Asp	Cys	His	Asp	His	Ser	Asp	Glu	Ala	Pro	Lys	Asn	Pro	His	Cys
2885					2890						2895			
Thr	Ser	Pro	Glu	His	Lys	Cys	Asn	Ala	Ser	Ser	Gln	Phe	Leu	Cys
2900					2905						2910			
Ser	Ser	Gly	Arg	Cys	Val	Ala	Glu	Ala	Leu	Leu	Cys	Asn	Gly	Gln
2915					2920						2925			
Asp	Asp	Cys	Gly	Asp	Gly	Ser	Asp	Glu	Arg	Gly	Cys	His	Val	Asn
2930					2935						2940			
Glu	Cys	Leu	Ser	Arg	Lys	Leu	Ser	Gly	Cys	Ser	Gln	Asp	Cys	Glu
2945					2950						2955			
Asp	Leu	Lys	Ile	Gly	Phe	Lys	Cys	Arg	Cys	Arg	Pro	Gly	Phe	Arg
2960					2965						2970			
Leu	Lys	Asp	Asp	Gly	Arg	Thr	Cys	Ala	Asp	Leu	Asp	Glu	Cys	Ser
2975					2980						2985			
Thr	Thr	Phe	Pro	Cys	Ser	Gln	Leu	Cys	Ile	Asn	Thr	His	Gly	Ser
2990					2995						3000			
Tyr	Lys	Cys	Leu	Cys	Val	Glu	Gly	Tyr	Ala	Pro	Arg	Gly	Gly	Asp
3005					3010						3015			
Pro	His	Ser	Cys	Lys	Ala	Val	Thr	Asp	Glu	Glu	Pro	Phe	Leu	Ile
3020					3025						3030			
Phe	Ala	Asn	Arg	Tyr	Tyr	Leu	Arg	Lys	Leu	Asn	Leu	Asp	Gly	Ser
3035					3040						3045			
Asn	Tyr	Thr	Leu	Leu	Lys	Gln	Gly	Leu	Asn	Asn	Ala	Val	Ala	Leu
3050					3055						3060			
Ala	Phe	Asp	Tyr	Arg	Glu	Gln	Met	Ile	Tyr	Trp	Thr	Gly	Val	Thr
3065					3070						3075			
Thr	Gln	Gly	Ser	Met	Ile	Arg	Arg	Met	His	Leu	Asn	Gly	Ser	Asn
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Val	Gln	Val	Leu	His	Arg	Thr	Gly	Leu	Ser	Asn	Pro	Asp	Gly	Leu
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Ala Val Asp Trp Val Gly Gly Asn Leu Tyr Trp Cys Asp Lys Gly  
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 Arg Asp Thr Ile Glu Val Ser Lys Leu Asn Gly Ala Tyr Arg Thr  
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 Val Leu Val Ser Ser Gly Leu Arg Glu Pro Arg Ala Leu Val Val  
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 Asp Val Gln Asn Gly Tyr Leu Tyr Trp Thr Asp Trp Gly Asp His  
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 Ser Leu Ile Gly Arg Ile Gly Met Asp Gly Ser Gly Arg Ser Ile  
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 Tyr Val Thr Glu Arg Ile Tyr Trp Ala Asp Ala Arg Glu Asp Tyr  
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 Ser Gln Asp Ile Pro His Ile Phe Ala Leu Thr Leu Phe Glu Asp  
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 His Lys Thr Thr Gly Ala Asn Lys Thr Leu Leu Ile Ser Thr Leu  
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 His Arg Pro Met Asp Leu His Val Phe His Ala Leu Arg Gln Pro  
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 Asn Leu Cys Leu Leu Ser Pro Gly Gly Gly His Lys Cys Ala Cys  
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 Pro Thr Asn Phe Tyr Leu Gly Gly Asp Gly Arg Thr Cys Val Ser  
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 Pro Phe Trp Trp Lys Cys Asp Thr Glu Asp Asp Cys Gly Asp His  
 3350 3355 3360  
 Ser Asp Glu Pro Pro Asp Cys Pro Glu Phe Lys Cys Arg Pro Gly  
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 Gln Phe Gln Cys Ser Thr Gly Ile Cys Thr Asn Pro Ala Phe Ile  
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 Cys Asp Gly Asp Asn Asp Cys Gln Asp Asn Ser Asp Glu Ala Asn  
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 Cys Asp Ile His Val Cys Leu Pro Ser Gln Phe Lys Cys Thr Asn

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Asn Cys Gly Asp Gly Glu Asp	Glu Arg Asp Cys Pro	Glu Val Thr
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Cys Ala Pro Asn Gln Phe Gln	Cys Ser Ile Thr Lys	Arg Cys Ile
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Pro Arg Val Trp Val Cys Asp	Arg Asp Asn His Cys	Val Asp Gly
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Ser Asp Glu Pro Ala Asn Cys	Thr Gln Met Thr Cys	Gly Val Asp
3485	3490	3495
Glu Phe Arg Cys Lys Asp Ser	Gly Arg Cys Ile Pro	Ala Arg Trp
3500	3505	3510
Lys Cys Asp Gly Glu Asp Asp	Cys Gly Asp Gly Ser	Asp Glu Pro
3515	3520	3525
Lys Glu Glu Cys Asp Glu Arg	Thr Cys Glu Pro Tyr	Gln Phe Arg
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Cys Lys Asn Asn Arg Cys Val	Pro Gly Arg Trp Gln	Cys Asp Tyr
3545	3550	3555
Asp Asn Asp Cys Gly Asp Asn	Ser Asp Glu Glu Ser	Cys Thr Pro
3560	3565	3570
Arg Pro Cys Ser Glu Ser Glu	Phe Phe Cys Ala Asn	Gly Arg Cys
3575	3580	3585
Ile Ala Gly Arg Trp Lys Cys	Asp Gly Asp His Asp	Cys Ala Asp
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Gly Ser Asp Glu Lys Asp Cys	Thr Pro Arg Cys Asp	Met Asp Gln
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Phe Gln Cys Lys Ser Gly His	Cys Ile Pro Leu Arg	Trp Pro Cys
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Asp Ala Asp Ala Asp Cys Met	Asp Gly Ser Asp Glu	Glu Ala Cys
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Gly Thr Gly Val Arg Thr Cys	Pro Leu Asp Glu Phe	Gln Cys Asn
3650	3655	3660
Asn Thr Leu Cys Lys Pro Leu	Ala Trp Lys Cys Asp	Gly Glu Asp
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Asp Cys Gly Asp Asn Ser Asp	Glu Asn Pro Glu Glu	Cys Ala Arg
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Phe Ile Cys Pro Pro Asn Arg	Pro Phe Arg Cys Lys	Asn Asp Arg
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Val Cys Leu Trp Ile Gly Arg	Gln Cys Asp Gly Val	Asp Asn Cys
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Cys	Leu	Arg	Phe	Gly	Thr	Cys	Ser	Gln	Leu	Trp	Asn	Lys	Pro	Lys
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Gly	Gly	His	Leu	Cys	Ser	Cys	Ala	Arg	Asn	Phe	Met	Lys	Thr	His
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Asp	Ala	Met	Asp	Val	His	Val	Lys	Ala	Gly	Arg	Val	Tyr	Trp	Thr
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Ala	Pro	Pro	Thr	Thr	Ser	Asn	Arg	His	Arg	Arg	Gln	Ile	Asp	Arg
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Gly	Val	Thr	His	Leu	Asn	Ile	Ser	Gly	Leu	Lys	Met	Pro	Arg	Gly
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Ile	Ala	Ile	Asp	Trp	Val	Ala	Gly	Asn	Val	Tyr	Trp	Thr	Asp	Ser
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His	Pro	Lys	Ile	Glu	Thr	Ala	Ala	Met	Asp	Gly	Thr	Leu	Arg	Glu
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Thr	Leu	Val	Gln	Asp	Asn	Ile	Gln	Trp	Pro	Thr	Gly	Leu	Ala	Val
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Asp	Tyr	His	Asn	Glu	Arg	Leu	Tyr	Trp	Ala	Asp	Ala	Lys	Leu	Ser
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Val	Ile	Gly	Ser	Ile	Arg	Leu	Asn	Gly	Thr	Asp	Pro	Ile	Val	Ala
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Ala	Asp	Ser	Lys	Arg	Gly	Leu	Ser	His	Pro	Phe	Ser	Ile	Asp	Val
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Phe	Glu	Asp	Tyr	Ile	Tyr	Gly	Val	Thr	Tyr	Ile	Asn	Asn	Arg	Val
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Trp	Leu	Cys	Leu	Leu	Ser	Pro	Ser	Gly	Pro	Val	Cys	Thr	Cys	Pro
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Asn	Gly	Lys	Arg	Leu	Asp	Asn	Gly	Thr	Cys	Val	Pro	Val	Pro	Ser
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Pro	Thr	Pro	Pro	Pro	Asp	Ala	Pro	Arg	Pro	Gly	Thr	Cys	Thr	Leu
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Gln	Cys	Phe	Asn	Gly	Gly	Ser	Cys	Phe	Leu	Asn	Ala	Arg	Arg	Gln
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Leu	Asp	Gln	Cys	Trp	Glu	Tyr	Cys	His	Asn	Gly	Gly	Thr	Cys	Ala
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Ala	Ser	Pro	Ser	Gly	Met	Pro	Thr	Cys	Arg	Cys	Pro	Thr	Gly	Phe
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Thr	Gly	Pro	Lys	Cys	Thr	Ala	Gln	Val	Cys	Ala	Gly	Tyr	Cys	Ser
4265						4270						4275		
Asn	Asn	Ser	Thr	Cys	Thr	Val	Asn	Gln	Gly	Asn	Gln	Pro	Gln	Cys
4280						4285						4290		
Arg	Cys	Leu	Pro	Gly	Phe	Leu	Gly	Asp	Arg	Cys	Gln	Tyr	Arg	Gln
4295						4300						4305		
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Asp	Gly	Ser	Arg	Gln	Cys	Arg	Cys	Thr	Val	Tyr	Phe	Glu	Gly	Pro

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Arg Cys Glu Val Asn Lys Cys Ser Arg Cys Leu Gln Gly Ala Cys		
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Val Val Asn Lys Gln Thr Gly Asp Val Thr Cys Asn Cys Thr Asp		
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Gly Arg Val Ala Pro Ser Cys Leu Thr Cys Ile Asp His Cys Ser		
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Asn Gly Gly Ser Cys Thr Met Asn Ser Lys Met Met Pro Glu Cys		
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Gln Cys Pro Pro His Met Thr Gly Pro Arg Cys Gln Glu Gln Val		
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Val Ser Gln Gln Gln Pro Gly His Met Ala Ser Ile Leu Ile Pro		
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Leu Leu Leu Leu Leu Leu Leu Leu Val Ala Gly Val Val Phe		
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Trp Tyr Lys Arg Arg Val Arg Gly Ala Lys Gly Phe Gln His Gln		
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Arg Met Thr Asn Gly Ala Met Asn Val Glu Ile Gly Asn Pro Thr		
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Tyr Lys Met Tyr Glu Gly Gly Glu Pro Asp Asp Val Gly Gly Leu		
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Leu Asp Ala Asp Phe Ala Leu Asp Pro Asp Lys Pro Thr Asn Phe		
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Thr Asn Pro Val Tyr Ala Thr Leu Tyr Met Gly Gly His Gly Ser		
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Arg Gly Pro Glu Asp Glu Ile Gly Asp Pro Leu Ala		
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Val Leu Leu Ser Tyr Leu Asn Glu Thr Val Thr Val Ser Ala Ser Leu  
 50 55 60

Glu Ser Val Arg Gly Asn Arg Ser Leu Phe Thr Asp Leu Glu Ala Glu  
 65 70 75 80

Asn Asp Val Leu His Cys Val Ala Phe Ala Val Pro Lys Ser Ser Ser  
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Asn Glu Glu Val Met Phe Leu Thr Val Gln Val Lys Gly Pro Thr Gln  
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Glu Phe Lys Lys Arg Thr Thr Val Met Val Lys Asn Glu Asp Ser Leu  
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Val Phe Val Gln Thr Asp Lys Ser Ile Tyr Lys Pro Gly Gln Thr Val  
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Lys Phe Arg Val Val Ser Met Asp Glu Asn Phe His Pro Leu Asn Glu  
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Leu Ile Pro Leu Val Tyr Ile Gln Asp Pro Lys Gly Asn Arg Ile Ala  
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Gln Trp Gln Ser Phe Gln Leu Glu Gly Gly Leu Lys Gln Phe Ser Phe  
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Pro Leu Ser Ser Glu Pro Phe Gln Gly Ser Tyr Lys Val Val Val Gln  
 195 200 205

Lys Lys Ser Gly Gly Arg Thr Glu His Pro Phe Thr Val Glu Glu Phe  
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Val Leu Pro Lys Phe Glu Val Gln Val Thr Val Pro Lys Ile Ile Thr  
 225 230 235 240

Ile Leu Glu Glu Glu Met Asn Val Ser Val Cys Gly Leu Tyr Thr Tyr  
 245 250 255

Gly Lys Pro Val Pro Gly His Val Thr Val Ser Ile Cys Arg Lys Tyr  
 260 265 270

Ser Asp Ala Ser Asp Cys His Gly Glu Asp Ser Gln Ala Phe Cys Glu  
 275 280 285

Lys Phe Ser Gly Gln Leu Asn Ser His Gly Cys Phe Tyr Gln Gln Val  
 290 295 300

Lys Thr Lys Val Phe Gln Leu Lys Arg Lys Glu Tyr Glu Met Lys Leu  
 305 310 315 320

His Thr Glu Ala Gln Ile Gln Glu Glu Gly Thr Val Val Glu Leu Thr  
 325 330 335

Gly Arg Gln Ser Ser Glu Ile Thr Arg Thr Ile Thr Lys Leu Ser Phe  
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Val Lys Val Asp Ser His Phe Arg Gln Gly Ile Pro Phe Phe Gly Gln  
 355 360 365

Val Arg Leu Val Asp Gly Lys Gly Val Pro Ile Pro Asn Lys Val Ile

370

375

380

Phe Ile Arg Gly Asn Glu Ala Asn Tyr Tyr Ser Asn Ala Thr Thr Asp  
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 Glu His Gly Leu Val Gln Phe Ser Ile Asn Thr Thr Asn Val Met Gly  
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 Thr Ser Leu Thr Val Arg Val Asn Tyr Lys Asp Arg Ser Pro Cys Tyr  
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 Gly Tyr Gln Trp Val Ser Glu Glu His Glu Glu Ala His His Thr Ala  
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 Tyr Leu Val Phe Ser Pro Ser Lys Ser Phe Val His Leu Glu Pro Met  
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 Ser His Glu Leu Pro Cys Gly His Thr Gln Thr Val Gln Ala His Tyr  
 465 470 475 480  
 Ile Leu Asn Gly Gly Thr Leu Leu Gly Leu Lys Lys Leu Ser Phe Tyr  
 485 490 495  
 Tyr Leu Ile Met Ala Lys Gly Gly Ile Val Arg Thr Gly Thr His Gly  
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 Leu Leu Val Lys Gln Glu Asp Met Lys Gly His Phe Ser Ile Ser Ile  
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 Pro Val Lys Ser Asp Ile Ala Pro Val Ala Arg Leu Leu Ile Tyr Ala  
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 Val Leu Pro Thr Gly Asp Val Ile Gly Asp Ser Ala Lys Tyr Asp Val  
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 Glu Asn Cys Leu Ala Asn Lys Val Asp Leu Ser Phe Ser Pro Ser Gln  
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 Pro Asp Ala Glu Leu Ser Ala Ser Ser Val Tyr Asn Leu Leu Pro Glu  
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 Lys Asp Leu Thr Gly Phe Pro Gly Pro Leu Asn Asp Gln Asp Asp Glu  
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 Asp Cys Ile Asn Arg His Asn Val Tyr Ile Asn Gly Ile Thr Tyr Thr  
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 Pro Val Ser Ser Thr Asn Glu Lys Asp Met Tyr Ser Phe Leu Glu Asp  
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 Met Gly Leu Lys Ala Phe Thr Asn Ser Lys Ile Arg Lys Pro Lys Met  
 675 680 685  
 Cys Pro Gln Leu Gln Gln Tyr Glu Met His Gly Pro Glu Gly Leu Arg

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Val	Gly	Phe	Tyr	Glu	Ser	Asp	Val	Met	Gly	Arg	Gly	His	Ala	Arg	Leu
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Ala	Phe	Cys	Leu	Ser	Glu	Asp	Ala	Gly	Leu	Gly	Ile	Ser	Ser	Thr	Ala
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Ser	Val	Ile	Arg	Gly	Glu	Ala	Phe	Thr	Leu	Lys	Ala	Thr	Val	Leu	Asn
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Ala	Phe	Leu	Ala	Val	Pro	Val	Glu	Lys	Glu	Gln	Ala	Pro	His	Cys	Ile
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Cys	Ala	Asn	Gly	Arg	Gln	Thr	Val	Ser	Trp	Ala	Val	Thr	Pro	Lys	Ser
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Leu	Gly	Asn	Val	Asn	Phe	Thr	Val	Ser	Ala	Glu	Ala	Leu	Glu	Ser	Gln
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Glu	Leu	Cys	Gly	Thr	Glu	Val	Pro	Ser	Val	Pro	Glu	His	Gly	Arg	Lys
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Glu	Thr	Thr	Phe	Asn	Ser	Leu	Leu	Cys	Pro	Ser	Gly	Gly	Glu	Val	Ser
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Glu	Glu	Leu	Ser	Leu	Lys	Leu	Pro	Pro	Asn	Val	Val	Glu	Glu	Ser	Ala
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Arg	Ala	Ser	Val	Ser	Val	Leu	Gly	Asp	Ile	Leu	Gly	Ser	Ala	Met	Gln
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Asn	Thr	Gln	Asn	Leu	Leu	Gln	Met	Pro	Tyr	Gly	Cys	Gly	Glu	Gln	Asn
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Val	Tyr	Thr	Lys	Ala	Leu	Leu	Ala	Tyr	Ala	Phe	Ala	Leu	Ala	Gly
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Leu	Gln	Thr	Ser	Leu	Lys	Tyr	Asn	Ile	Leu	Pro	Glu	Lys	Glu	Glu
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Lys	Met	Val	Ser	Gly	Phe	Ile	Pro	Leu	Lys	Pro	Thr	Val	Lys	Met
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Leu	Glu	Arg	Ser	Asn	His	Val	Ser	Arg	Thr	Glu	Val	Ser	Ser	Asn
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	tggaaaacctg	cagtatatgg	ttctggtccc	ctccctgctc	cacactgaga	ccactgagaa								180
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Met Val Ser Gly Phe Ile Pro Leu Lys Pro Thr Val Lys Met Leu Glu	
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Arg Ser Asn His Val Ser Arg Thr Glu Val Ser Ser Asn His Val Leu	
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Ile Tyr Leu Asp Lys Val Ser Asn Gln Thr Leu Ser Leu Phe Phe Thr	
85 90 95	
Val Leu Gln Asp Val Pro Val Arg Asp Leu Lys Pro Ala Ile Val Lys	
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50 55 60  
Ala Phe Ala Val Pro Lys Ser Ser Asn Glu Glu Val Met Phe Leu  
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Val Met Val Lys Asn Glu Asp Ser Leu Val Phe Val Gln Thr Asp Lys  
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Ser Ile Tyr Lys Pro Gly Gln Thr Val Lys Phe Arg Val Val Ser Met  
115 120 125  
Asp Glu Asn Phe His Pro Leu Asn Glu Leu Ile Pro Leu Val Tyr Ile  
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Gln Asp Pro Lys Gly Asn Arg Ile Ala Gln Trp Gln Ser Phe Gln Leu  
145 150 155 160  
Glu Gly Gly Leu Lys Gln Phe Ser Phe Pro Leu Ser Ser Glu Pro Phe  
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Gln Gly Ser Tyr Lys Val Val Val Gln Lys Lys Ser Gly Gly Arg Thr  
180 185 190  
Glu His Pro Phe Thr Val Glu Glu Phe Val Leu Pro Lys Phe Glu Val  
195 200 205  
Gln Val Thr Val Pro Lys Ile Ile Thr Ile Leu Glu Glu Glu Met Asn  
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Val Ser Val Cys Gly Leu Tyr Thr Tyr Gly Lys Pro Val Pro Gly His  
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Val Thr Val Ser Ile Cys Arg Lys Tyr Ser Asp Ala Ser Asp Cys His  
245 250 255  
Gly Glu Asp Ser Gln Ala Phe Cys Glu Lys Phe Ser Gly Gln Leu Asn  
260 265 270  
Ser His Gly Cys Phe Tyr Gln Gln Val Lys Thr Lys Val Phe Gln Leu  
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Lys Arg Lys Glu Tyr Glu Met Lys Leu His Thr Glu Ala Gln Ile Gln  
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Glu Glu Gly Thr Val Val Glu Leu Thr Gly Arg Gln Ser Ser Glu Ile  
305 310 315 320  
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325 330 335  
Arg Gln Gly Ile Pro Phe Phe Gly Gln Val Arg Leu Val Asp Gly Lys  
340 345 350  
Gly Val Pro Ile Pro Asn Lys Val Ile Phe Ile Arg Gly Asn Glu Ala  
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Asn Tyr Tyr Ser Asn Ala Thr Thr Asp Glu His Gly Leu Val Gln Phe  
 370 375 380  
 Ser Ile Asn Thr Thr Asn Val Met Gly Thr Ser Leu Thr Val Arg Val  
 385 390 395 400  
 Asn Tyr Lys Asp Arg Ser Pro Cys Tyr Gly Tyr Gln Trp Val Ser Glu  
 405 410 415  
 Glu His Glu Glu Ala His His Thr Ala Tyr Leu Val Phe Ser Pro Ser  
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 Lys Ser Phe Val His Leu Glu Pro Met Ser His Glu Leu Pro Cys Gly  
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 His Thr Gln Thr Val Gln Ala His Tyr Ile Leu Asn Gly Gly Thr Leu  
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 465 470 475 480  
 Gly Ile Val Arg Thr Gly Thr His Gly Leu Leu Val Lys Gln Glu Asp  
 485 490 495  
 Met Lys Gly His Phe Ser Ile Ser Ile Pro Val Lys Ser Asp Ile Ala  
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 Pro Val Ala Arg Leu Leu Ile Tyr Ala Val Leu Pro Thr Gly Asp Val  
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 Ile Gly Asp Ser Ala Lys Tyr Asp Val Glu Asn Cys Leu Ala Asn Lys  
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 His Leu Arg Val Thr Ala Ala Pro Gln Ser Val Cys Ala Leu Arg Ala  
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 Val Asp Gln Ser Val Leu Leu Met Lys Pro Asp Ala Glu Leu Ser Ala  
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 Ser Ser Val Tyr Asn Leu Leu Pro Glu Lys Asp Leu Thr Gly Phe Pro  
 595 600 605  
 Gly Pro Leu Asn Asp Gln Asp Asp Glu Asp Cys Ile Asn Arg His Asn  
 610 615 620  
 Val Tyr Ile Asn Gly Ile Thr Tyr Thr Pro Val Ser Ser Thr Asn Glu  
 625 630 635 640  
 Lys Asp Met Tyr Ser Phe Leu Glu Asp Met Gly Leu Lys Ala Phe Thr  
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 660 665 670  
 Glu Met His Gly Pro Glu Gly Leu Arg Val Gly Phe Tyr Glu Ser Asp  
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 Val Met Gly Arg Gly His Ala Arg Leu Val His Val Glu Glu Pro His  
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 Asp Thr Ile Thr Glu Trp Lys Ala Gly Ala Phe Cys Leu Ser Glu Asp  
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 Glu Lys Glu Gln Ala Pro His Cys Ile Cys Ala Asn Gly Arg Gln Thr  
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 Val Ser Trp Ala Val Thr Pro Lys Ser Leu Gly Asn Val Asn Phe Thr  
 835 840 845  
 Val Ser Ala Glu Ala Leu Glu Ser Gln Glu Leu Cys Gly Thr Glu Val

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1380 1385 1390  
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